A Slow Start at the Beginning of the Recycling Chain

How to Make Consumers Recycle Their Mobile Phones?

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Tiivistelmä – Referat – Abstract

The aim of this research is to find out why people recycle their old mobile phones lazily. The interest to recycle electronic equipment has enlarged in past few years; the reason for this is the aim of the European Union (EU) to increase recycling as a whole. In the background, there is the objective of the EU to reduce waste by delegating the responsibility of the products' waste handling to producers. The European Parliament and the Council have passed a directive on Waste Electrical and Electronic Equipment (WEEE) (2002/96/EC) and its amendment (2003/108/EC).

This study is descriptive and aims at answering the questions about mobile phone owners' recycling behaviour. The aim is to find reasons for consumers not recycling their phones, and hence, help to create measures to raise the takeback percentage. The results will be exploited in Nokia Corporation when they plan organizing the takeback system and possible future recycling campaigns. The primary research question is: What is a (non-)recycler like? For example, are there differences in mobile phone recycling behaviour between Finnish cultural areas?

Theories concerning environmental behaviour (e.g. the Theory of Planned Behaviour) that were used to create a theoretical framework for the study are presented. The questionnaire was produced based on that framework, and so was the analysis. The questionnaires, 58 altogether, were filled in three Finnish cities, Helsinki, Turku and Lappeenranta, in February and March. The study is qualitative, but it is strongly supported by quantitative analysis. This means that the description of themes is to a great extent quantified.

The results have shown that many phones are stored at home; only five people had recycled their phones. Usually phones were kept as spare phones, but also the lack of information about the takeback of used phones and laziness were reasons for not recycling phones. Most of the respondents considered recycling mobile phones important. Ten respondents have heard about the recent Finnish recycling campaign by Nokia and the WWF; the opinions were positive. By giving more information using, e.g., the internet or the mass media, about recycling mobile phones, the recycling percentage could be amounted. The non mobile phone recyclers were mostly women and over fifty. The capital city area could also need some specific attention as the mobile phone recycling activity was quite poor.

Two questions were discovered needing more research: the best way(s) of informing people and people's limits in inconvenience when mobile phone recycling is concerned.

Avainsanat – Nyckelord – Keywords

Recycling behaviour, Mobile phone, Waste Electrical and Electronic Equipment (WEEE)

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Tiivistelmä Referat – Abstract

Työn tarkoituksena on löytää syitä siihen miksi ihmiset kierrättävät laiskasti matkapuhelimia. Kiinnostus elektroniikkalaitteiden kierrättämiseen on kasvanut viime vuosina, koska Euroopan Unioni tähtää kierrätyksen lisäämiseen. Taustalla on EU:n tavoite vähentää jätettä siirtämällä tuottajille vastuun tuotteiden jätehuollosta. Euroopan parlamentti ja neuvosto ovat antaneet direktiivin sähkö- ja elektroniikkaromusta (SER) (2002/96/EC) sekä sen muunnoksen (2003/108/EC).

Työ on kuvaileva ja se yrittää löytää vastauksia kysymyksiin koskien matkapuhelinten omistajien kierrätyskäyttäytymistä. Tarkoitus on löytää syitä matkapuhelimien kierrättämättömyydelle ja täten auttaa luomaan keinoja kierrätysprosentin nostamiseksi. Tuloksia tullaan käyttämään Nokia Oyj:n suunnitellessa kierrätyksen järjestämistä sekä mahdollisia uusia kierrätyskampanjoita. Päätutkimuskysymys on: Millainen on kierrättäjä (tai ihminen, joka ei kierrätä)? Onko esimerkiksi nähtävissä kulturellisia eroja matkapuhelimen kierrätyskäyttäytymisessä Suomessa?

Tutkimuksessa esitellään teorioita (mm. suunnitellun käyttäytymisen teoria), joita on käytetty teoreettisen viitekehyksen luomiseen. Tähän viitekehykseen perustuu niin kyselylomake kuin analyysikin. Kyselylomakkeet, yhteensä 58, täytettiin kolmessa Suomen kaupungissa, Helsingissä, Turussa ja Lappeenrannassa helmi-maaliskuun aikana. Tutkimus on kvalitatiivinen, mutta sitä tukee kvantitatiivinen analyysi. Tämä tarkoittaa sitä, että teemat kuvaillaan suurelta osin numeerisesti.

Tuloksien mukaan monet puhelimet ovat kodeissa säilytyksessä, vain viisi ihmistä oli kierrättänyt matkapuhelimensa. Yleensä puhelimia säilytetään tarpeen varalta, mutta myös tiedon puute kierrätyksestä ja laiskuus olivat syitä kierrättämättömyyteen. Suurin osa vastaajista piti matkapuhelimien kierrätystä tärkeänä. Kymmenen oli kuullut Nokian ja WWF:n järjestämästä kierrätyskampanjasta, kaikki pitivät sitä hyvänä asiana. Kierrätysprosenttia voitaisiin nostaa jakamalla enemmän tietoa matkapuhelinten kierrätyksestä esimerkiksi internetin tai massa median välityksellä. Kierrättämättömien ryhmää kuvaa pääasiassa naiseus ja yli viisikymppisyys. Myös pääkaupunkiseutu näyttäisi tarvitsevan erikoishuomiota, sillä siellä kierrätysprosentti oli alhainen.

Kaksi asiaa näyttäisi tarvitsevan lisätutkimusta: mitkä ovat parhaat tavat välittää tietoa ihmisille ja missä menee liiallisen epämukavuuden raja matkapuhelinten kierrätyksen ollessa kyseessä?

Avainsanat – Nyckelord – Keywords

Kierrätyskäyttäytyminen, matkapuhelin, sähkö- ja elektroniikkaromu (SER)

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Muita tietoja – Övriga uppgifter – Additional information

Contents

Figures

Tables

1. Introduction

The aim of this research is to find out why people recycle their old mobile phones lazily. According to Nokia Corporation's Environmental Report (2004: 53), only about ten percent of mobile phones return to recycling in Europe. The report explains that most of the used phones are stored at home. Similar results have been illustrated by a study in Finland: Heikkinen et al. found that 72% of the respondents had owned a mobile phone that was no longer in use. About thirty percent of these phones were returned to stores; the next common thing to do was to give the old mobile phone to a relative or to a friend (about 20%). It was equally common to keep the phone for some reason. Only 2-3% of the respondents had put the old phones with the mixed municipal waste. (Heikkinen et al., 2004: 112.)

From environmental point of view, there are myriad mobile phones, thus, it is important that people recycle them. The Finnish study made by Heikkinen et al. (2004, 25) established that more than ninety percent of the respondents had a mobile phone. The same is acknowledged by Statistics Finland; in spring 2005 about 92% of Finnish people between age 15 and 74 had a mobile phone (Statistics Finland. 12.6.2006). The latest findings show that 97.2% of Finnish households possess one or more mobile phones (Tilastokeskus, 2007). In numbers, there are over five million mobile phone subscriptions in Finland; and yearly about 1.6 million phones are sold. Thus, phones are used on average three years in Finland. (Kuluttajavirasto. 31.5.2007.) The European Environment Agency (EEA) has estimated in 2003 that when the average lifetime of a mobile phone is about four years the waste potential would have been in 2005 approximately 57.6 million mobile phones (14,400 tonnes) for the EEA member countries (European Topic Center on Waste, 2003: 60).

The interest to recycling electronic equipment has enlarged in past few years; the reason for this is the aim of the European Union (EU) to increase recycling as a whole. In the background, there is the objective of the EU to reduce waste by delegating the responsibility of the products' waste handling to the producers, i.e. producer responsibility which will be next presented. The European Parliament and the Council have passed a directive on Waste Electrical and Electronic Equipment (WEEE) (2002/96/EC) and its

amendment (2003/108/EC) (see 1.2). The directive has been implemented in Finland through the amended Waste Act (452/2004) and through a related Government Decree (852/2004), which came into force on the 13th of August 2005 obliging the manufacturers and commercial importers of electronical and electrical equipment to take responsibility for waste management related to these products. (Environmental Administration. 7.11.2006.)

1.1. Producer Responsibility in Waste Management

The European Union environmental policy is based on three principles: the precautionary principle, the principle that environmental damage should as a priority be rectified at source and the polluter pays principle. Maybe the most important and concrete way of the European Union to reduce the amount of waste, is shifting the responsibility for waste handling to producers. As the producers are obliged to recycle, they also have a motive to design products that are easy to dismantle and recycle or, if possible, reuse as a product.

Producer responsibility requires producers to organise reuse, recovery or suitable treatment or disposal of their products and wastes derived from them, and also to cover the related costs. The objective of producer responsibility is, firstly, to reduce the quantity and harmfulness of waste taken to landfills, and secondly, the hazard and harm to both human health and the environment arising from waste (Waste Act 1072/1993; amendments up to 1063/2004 included). In Finland, producer responsibility covers, e.g., these product types: electronic and electrical appliances, vehicles, paper products and packaging. A producer in such instances means the manufacturers and the importers of the products, or where packaging is concerned, the packagers and the importers of packaged products. (Environmental Administration. 15.6.2006.)

Producer responsibility encourages manufacturers and importers to consider the whole life cycle of their products. This helps to promote, e.g., the following: design for environment, waste prevention, the separate collection and waste reuse and recycling. (Environmental Administration. 15.6.2006.) Design for environment (DFE, in Finnish: ympäristömyötäinen tuotesuunnittelu) is a term which means that a product's environmental impacts during its whole life cycle are known and remarkable impacts are tried to be diminished by product design. The main goal is to reduce the material and

energy use during a product's life cycle. (Kärnä, 2004: 190-191.) Integrating product design and environmental thinking started already in the 1970's concentrating then on design for recyclability. In the late eighties, life cycle thinking (life cycle design, design for environment) emerged when it was noticed that product design was needed to lessen their negative impacts on the environment. (Heiskanen et al., 1995: 2-3.)The EU directives WEEE and RoHS (Regulation of Hazardous Substances 2002/95/EC) are aimed at realizing this DFE-thinking (Kärnä, 2004: 191).

Producers and producer organisations are obliged to submit their details to the Pirkanmaa Regional Environment Centre for the national producer data register (Environmental Administration 15.6.2006). They must also ensure that the network of collection facilities enables the last holder to deliver discarded products for reuse, recovery or for other waste management in all parts of the country. The last holder of products has a right to deliver them free of charge to organised recovery and waste management system. If the producer has not organized reuse, recovery or other waste management, the Pirkanmaa Regional Environment Centre may oblige it to arrange them to comply with the requirements of law or the producer can be removed from the producer data register. (Waste Act 1072/1993; amendments up to 1063/2004 included.)

1.2. Directive on Waste Electrical and Electronic Equipment

The purpose of the directive on Waste Electrical and Electronic Equipment (WEEE) (2002/96/EC) is, as a first priority, the prevention of waste electrical and electronic equipment, and secondly, the reuse, recycling and other forms of recovery of such wastes, as required in the producer responsibility thinking, in order to reduce the disposal of waste. The directive also seeks to improve the environmental performance of all operators involved in the life cycle of electrical and electronic equipment, e.g., producers, distributors and consumers and in particular those operators directly involved in the treatment of waste electrical and electronic equipment. Electrical and electronic equipment (EEE) means equipment which is dependent on electric currents or electromagnetic fields in order to work properly, i.e.: e.g. equipment for the generation and equipment designed for use with a voltage rating not exceeding 1000 Volt for alternating current and 1500 Volt for direct current.

The directive demands that member states of the EU encourage the design and production of EEE which takes into account and facilitates dismantling and recovery, in particular the reuse and recycling of WEEE, their components and materials. In addition, member states must ensure that producers do not prevent, through specific design features or manufacturing processes, WEEE from being reused.

In order to minimise the disposal of WEEE as unsorted municipal waste and to achieve a high level of separate collection of WEEE, systems to take back WEEE from private households were supposed to be organized from 13.8.2005. Separate collection is the precondition to ensure specific treatment and recycling of WEEE. The producers of EEE, or third parties acting on their behalf, must set up systems to provide for the treatment of WEEE using best available treatment, recovery and recycling techniques. The systems can be set up by producers individually and/or collectively. When possible, priority should be given to the reuse of WEEE and its components, subassemblies and consumables.

Users of EEE from private households have the possibility of returning WEEE free of charge. In Finland the Government Decree (852/2004) obliges to recycle WEEE, it is forbidden to mix it with other wastes. Other users than households finance the waste handling of historical waste if the products are not replaced with new devices (2003/108/EC). Producers must therefore finance collection, the treatment, recovery and disposal of WEEE. For products put on the market later than 13.8.2005, each producer is responsible for financing the operations relating to the waste from producer's own products. Producers are compelled to, when placing a product on the market, provide a financial guarantee to prevent costs for the management of WEEE from orphan products from falling on society or the remaining producers. The responsibility for financing the management costs of WEEE from products put on the market before 13.8.2006 (historical waste) is provided by one or more systems to which all producers, existing on the market when the respective costs occur, contribute proportionately, e.g. in proportion to their respective share of the market by type of equipment. For a transitional period of eight years after entry into force of this directive, producers are allowed to show purchasers, at the time of sale of new products, the costs of collection, treatment and disposal in an environmentally sound way.

It is important that consumers receive information about the requirement not to dispose of WEEE as unsorted municipal waste, and about the collection systems and their role in the management of WEEE, and the meaning of the symbol. Hence, producers have to appropriately mark EEE put on the market after 13.8.2005 with the symbol illustrated in Figure 1. The symbol indicating separate collection for EEE consists of the crossed-out wheeled bin.

Figure 1. Separate collection symbol

Member states are required to draw up a register of producers. They must also collect information (including substantiated estimates) on an annual basis on the quantities and categories of EEE put on their market, collected through all routes, reused, recycled and recovered within the member states, and on collected waste exported, by weight or, if this is not possible, by numbers. The Commission is reported by member states on the implementation of the directive at three-year intervals. The first three-year report covers the period from 2004 to 2006.

Member states were supposed to guarantee that by 31.12.2006, at the latest, a rate of separate collection of at least four kilograms on average per inhabitant per year of WEEE from private households is achieved. In Finland producers organize separate collection of all WEEE that can be collected, irrespective of whether the collection target set has been achieved (Government Decree on WEEE 852/2004)[1]. New mandatory target shall be established, also for the products falling under category eight (medical devices) of the directive's Annex IA, by 31.12.2008. Furthermore, producers were expected to meet minimum targets by 31.12.2006. These minimum targets vary from fifty percent of the average weight to reusing and recycling within categories two (small household appliances), five (lighting equipment), six (electrical and electronic tools), seven (toys, leisure and sports equipment) and nine (monitoring and control instruments) of the directive's Annex IA to eighty percent recovery rate within category one (large household

[1] Among some other countries Finland qualified already in 2005. (Streams – Yhdyskuntien jätevirroista liiketoimintaa 2001-2004. Teknologiaohjelmaraportti 5/2005. TEKES)

appliances) and category ten (automatic dispensers). For collected WEEE that falls within categories three (IT and telecommunications equipment such as printer units and mobile telephones) and four (consumer equipment), at least 75% of the average weight per appliance is recovered and at least 65% is reused or recycled.

1.3. Aim of the Study

This study is descriptive and aims at answering the following questions. Where do old mobile phones end up? What do the owners know about mobile phone recycling? Is the mobile phone too valuable to be given away when buying a new one? Or is it too small, as an object, to be put to recycling? In other words, is it too easy to leave in the drawer?

The aim is to find reasons for consumers not recycling their phones, and hence, help to create measures to raise the takeback percentage. As it was presented in introduction, only a small number of the used mobile phones are returned for recycling. Thus, it seems that consumers' behaviour is the bottleneck in the directive's realization. If consumers do not recycle their used mobile phones, it is impossible for the producers to do their share. Motivating consumers in different manners, for instance by informing them, helps the producers to realize the demands of the directive, and to recover valuable materials. This also prevents disused phones from ending up in landfills and helps consumers to get rid of them.

To demonstrate why consumers do not recycle their phones, I try to discover the descriptors that show the eagerness to recycle. Using these descriptors, it might be possible to figure out some ways to promote recycling of used mobile phones. My primary research question is:

- What is a (non-)recycler like when mobile phone recycling is considered?
  - § Are the non-recyclers aware of the possibility to recycle mobile phones?
  - § What reasons do the non-recyclers give for not recycling their mobile phone(s)?
  - § Are the (non-)recyclers otherwise 'green consumers'?
  - § Are the (non-)recyclers equally distributed to women and men?

§ Where the (non-)recyclers live? Are they evenly distributed in Finland?

Do the non-recyclers live, e.g., in eastern Finland? Can it be assumed that it is due to the cultural background? This study is in a way a preliminary study for Nokia Corporation, so possible forthcoming cultural differences may help if a more global study is to be carried out later.

The study is confined to mobile phone recycling in Finland, but the results may also reflect the problems in the recycling of other small electrical equipment. This is because mobile phones are also small, and smaller items are easier to dispose of. In contrast, big household appliances, e.g. refrigerators, have landed to recycling already before the directive. However, unlike other small items, mobile phones possess lots of valuable materials to recycle. Thus, they are not so easily disposed of and producers are more motivated to organize the recycle system. (Darby and Obara, 2005.)

The recycling process as such and materials recycled are not presented in this study. The aim is to focus on the recycling behaviour of mobile phones. More information about the recycling process is offered, e.g., in Nokia's Environmental Report 2004 and internet pages.

1.4. Previous Studies

Though at least Nokia reports having been offering a takeback service to recycle mobile phones for several years (Nokia Environmental Report 2004: 52); mobile phone recycling in larger scale has not functioned for long. Recycling started in Europe, in the UK and Sweden, as pilot projects in 1997 (Jackson et al., 1998) reaching Finland in 2002 (Tanskanen, Pia. 1.6.2007. Informed by email). Hence, hitherto this area of recycling has not been widely studied.

Saphores et al. (2006) have studied WEEE recycling in California, the USA. To understand the willingness of California households to recycle WEEE the researchers conducted a mail survey of 3,000 households in 2004. They found that people, who are familiar with recycling, e.g., paper, were more willing to recycle WEEE, but the distance, i.e. the convenience of recycling, to a collection point matters. People living more than five miles (about eight kilometres) away from the nearest collection point are less likely to recycle.

However, perhaps being used to dropping of household garbage to collection sites, people living in a rural community were willing to recycle despite the inconvenience. Though convenience and experience affect, it was established that people between 36 and 65 years old are always more willing to recycle. Likewise, gender and education influence recycling activity of a person: women are more willing than men as well as people with a college degree compared to those without it. (Saphores et al., 2006.)

Darby and Obara (2005) examined how households in Cardiff, Wales, recycle small WEEE and what are their attitudes towards its disposal. The researchers conducted a survey including nearly 5,000 households and about thirty semi structured interviews. They argued that the respondents have given less thought to the disposal of small WEEE than to large WEEE as the smaller items are easier to dispose of. Additionally, small WEEE was not considered a waste in the same sense as other materials that the respondents were used to recycle. Hence, Darby and Obara noticed that 97% of the small WEEE was not recycled, because, as the interviews revealed, householders were not aware of how to recycle small WEEE. Perhaps due to transporting difficulties the households with lower annual income were less likely to recycle small WEEE. However, those households were also less likely to dispose of small WEEE with mixed waste as they keep small EEE for longer and give them to reuse. Women who did not recycle regularly were less likely to visit recycling sites than men, otherwise the likelihood was equal. Overall, the familiarity with recycling was found to have an impact: those who recycled regularly were more likely to recycle also small WEEE and those who did not recycle were more likely to discard small WEEE with mixed waste. (Darby and Obara, 2005.)

Heikkinen et al. (2004) have included mobile phone recycling in to their study about how information and communication technology (ICT) could support environmental-friendly everyday life. More specifically the researchers wanted to find out whether ICT and environmental protection has any relationship in people's mind, and whether ICT has an effect on how much people move from place to place and on consumption. The study using surveys and interviews was carried out in two cities in Finland: Helsinki and Oulu. The frequency and reasons for using a phone were established. Also people were asked about how concerned they are for environmental problems and their lifestyles, to give few examples. Moreover, the researchers found out what people had done with their disused

phones. (Heikkinen et al., 2004.) The results are presented and used as a point of comparison during this study.

A study made in the USA in 2006, examined mobile phone recycling as a whole, including legislation and mainly how the mobile phones should be recycled. As part of the data collection, a collection campaign was organized. It was discovered that people are not as used to recycle phones as they are to recycle, e.g., glass. Another interesting fact in the point of view of my study is that collected phones were newer models. (Blass et al., 2006.)

Nokia Corporation conducted an internal study of mobile phone recycling in 2006. The study was done via the Nokia employee intranet. Most of the 733 responses came from Europe/Middle East/Africa. (Tanskanen and Butler, 2007.) The data was given for my use and the key findings are as follows: more than one third possessed one or two old mobile phones at home, and one fourth had three or four phones. Thirteen percent responded having no unused phones at home. Maybe more typical of a Nokia employee than of an average citizen; nine percent had more than eight used phones at home. Accordingly, only eight percent had no phone belonging to an employer. 43% of the respondents kept their disused phones at home; 22% used sometimes their old phones which were left at home. Thirteen percent had recycled a phone, and twelve percent of the old phones were given to someone. Though eighty percent of the respondents knew where to return a used phone, 85% welcomed more information about recycling. Almost all considered that it is wrong to dispose of mobile phones with the mixed waste: 91% strongly agreed and six percent a little. Roughly eighty percent thought it should be made illegal to dispose of the old phones in the household waste. About four fifths preferred selling or giving old phones to someone to recycling them. Most of the phones are kept home as spare phones (43%), if included "still working" answers the percentage amounts to 54. The next popular reason was that a respondent did not know how to recycle a phone (7%). The phone containing personal information (e.g. photos) (3%), laziness etc. (4%) and extra effort of recycling (2%) were also given as reasons. Considering that the respondents are employees of Nokia, it was natural that, e.g., the following answers were found: "for collection" (2%), "company's phone" (4%) and "for work purposes" (2%).

2. Theoretical Background of the Study

It is necessary to be able to predict people's actions, for instance, when making political decisions. It could be imagined that same applies when realizing these decisions. Information about behaviour is needed to know how it would be best to fulfil, in practice, the obligations of law. To help understand human behaviour various theories have been constructed; since there seems to be only few studies focusing on the behavioural analysis of WEEE recycling, I have used some of them. The first theory presented, the theory of reasoned action, has been the most popular in attitude research on recycling behaviour (Davies et al., 2002: 32). After its amended version the Schwartz' social-psychological model of altruistic behaviour is introduced, followed by three theories that are based on multi-attribute models. The last theory examining behaviour is the way-of-life model by Uusitalo, which is also used as a link to justify the study's cultural approach. The Finnish cultural borderlines are illustrated before examining the theoretical framework of the study.

2.1. Consistency Theories: Theories of Reasoned Action and Planned Behaviour

Theories describing the structure of attitude and the changes in it are called consistency theories (Ajzen and Fishbein, 1980: 22). The main idea in these theories is that a person is trying to reach, on the one hand, an internal consistency between attitudes and knowledge, and on the other hand, a consistency between knowledge, attitudes and behaviour. If they are inconsistent, a psychological tension is developed that changes the cognitive structure. Contradictory roles or changes in the surroundings may create inconsistency. (Aalto, 1986: 7.) One of the consistency theories is the theory of reasoned action (TRA), developed by Ajzen and Fishbein, (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975) which is designed to explain virtually any human behaviour.

The TRA is based on the assumptions that human beings are usually quite rational and that they use systematically the information available to them (cf. chapter 2.5). That is, people consider the implications of their actions before they decide whether to engage in a given behaviour. The TRA views a person's intention to perform or not to perform behaviour as the immediate determinant of the action that is under volitional control. There is not

always a perfect correspondence between intention and behaviour, but usually a person will act in accordance with his/her intention. (Ajzen and Fishbein, 1980: 5.)

The TRA supposes that there is some kind of stability in the world, which may no longer exist. According to Bauman, we are nowadays living in a phase of liquid modernity where everything is constantly changing like liquids change their state (Bauman, 2002: 8-15, 103). Moisander also subscribes the idea of instability; she thinks that preferences and values are socially constructed in everyday interaction processes (Moisander, 2001: 92). Hence, it can be questioned whether it is possible to predict behaviour when identities are constantly changing. Ajzen and Fishbein admit that intentions change over time, thus, the observed behaviour is less accurately predicted when the time interval is longer. However, aggregate intentions tend to be much more stable over time than individual intentions are. (Ajzen and Fishbein, 1980: 47-48.)

To understand, not only to predict, behaviour, the determinants of intentions need to be identified. According to the TRA, a person's intention is a function of two basic determinants: attitude toward the behaviour, i.e., the individual's positive or negative evaluation of performing the behaviour, and the subjective norm, i.e., the individual's perception of the social pressure put on him to perform or not to perform the behaviour in question. The subjective norm might be wrong as it is a person's perception. Generally speaking, individuals will intend to perform a given behaviour when they evaluate it positively, and when they believe that "the important others" think they should perform it. The theory assumes that the relative importance of these factors depends, in part, on the intention in question. The relative importance of the two factors can also be influenced by demographic variables, personality traits and other individual differences. (Ajzen and Fishbein, 1980: 6, 57-59.)

For a more complete understanding of intentions, it is necessary to explain why people hold certain attitudes and subjective norms. According to the TRA, attitudes are a function of beliefs. By and large, a person who believes that performing a given behaviour will lead to mostly positive outcome will hold a favourable attitude toward performing the behaviour and vice versa. It should be noted that the theory examines a person's attitude toward the behaviour, not toward objects, people or institutions. (Ajzen and Fishbein, 1980: 7-8.)For Ajzen and Fishbein, an attitude toward any concept is a person's general

feeling of favourableness or unfavourableness for a given concept. It should be remarked that the attitude refers specifically to a person's *own* performance of the behaviour rather than to its performance in general. Although a person may be in favour of recycling, s/he may be opposed to his recycling. (Ajzen and Fishbein, 1980: 54-56.)

Ajzen's theory of planned behaviour (TPB) (Ajzen, 1988; Ajzen, 1991) is an extension of the TRA. Still, the central factor is the individual's intention to perform a given behaviour. However, the TPB deals better with behaviours over which people have incomplete volitional control than the TRA. According to Ajzen, intentions are "indications of how hard people are willing to try, --, in order to perform the behaviour". In sum, strong intentions reflect high likelihood of performance. Presumed that the behaviour in question is under volitional control, i.e., if performing the behaviour is only dependent on the individual's will. In most cases, the performance is dependent on non-motivational factors, such as opportunities and resources (e.g. time, skills) which are the factors that represent the individual's actual control over the behaviour. Thus, "behavioural achievement depends jointly on motivation (intention) and ability (behavioural control) --". (Ajzen, 1991: 181-182.)

The theory postulates three conceptually independent determinants of intention from which two of them are the same as in the TRA: attitude toward the behaviour, the subjective norm; and the added factor perceived behavioural control (PBC). The last is assumed to reflect past experience, as well as, anticipated impediments and obstacles. Perceived behavioural control plays an important part in the TPB; it reports how easy people perceive a given behaviour to be. The variable, together with behavioural intention, can be used directly to predict behavioural achievement. For accurate prediction the context, intentions and perceived behavioural control must remain stable. However, when an individual has complete control over the behaviour, intentions alone should be sufficient to predict it. (Ajzen, 1991: 183-188.)

People have beliefs about themselves and the world in which they live. These beliefs underlie people's attitudes and the subjective norms, and they ultimately determine people's intentions and behaviour. Although a person may hold a large number of beliefs, it appears that s/he can attend to only a relatively small number of beliefs - perhaps five to nine. According to the TRA and the TPB behaviour is a function of salient beliefs relevant

to the behaviour. It is these salient beliefs that mainly affect a person's intentions and actions. The salient beliefs are divided in three: the behavioural beliefs are assumed to influence attitudes toward the behaviour; the normative beliefs constitute the underlying determinants of the subjective norms; and the control beliefs provide the basis for perceptions of behavioural control. They in turn influence intentions which affect behaviour (see Figure 2). Thus, behavioural change is ultimately the result of changes in beliefs. In order to influence behaviour, we have to give people information that creates changes in their beliefs. If neither the attitude nor the subjective norm changes, we cannot expect a change in behaviour. (Ajzen and Fishbein, 1980: 62-63; Ajzen, 1991: 189.)

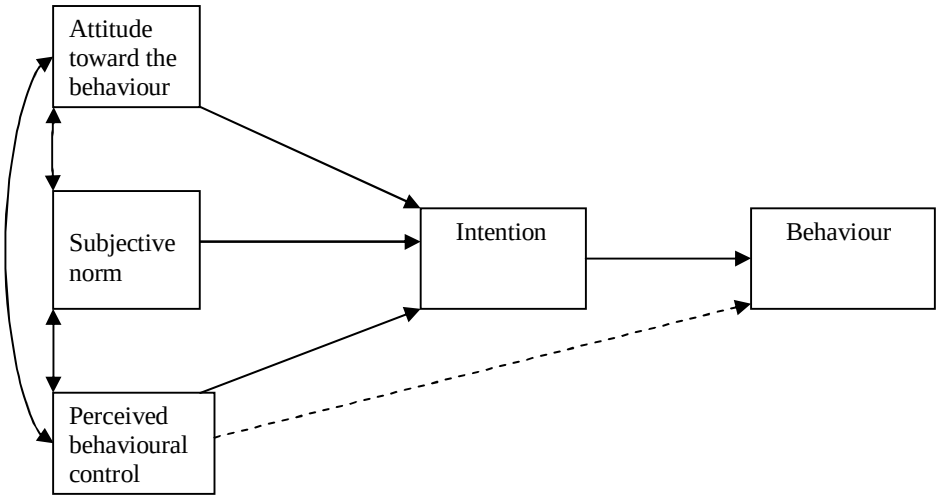

Figure 2. Theory of Planned Behaviour. (Ajzen, 1991: 182)

Other factors are not included, these external variables, such as demographic variables or personality characteristics, may influence the beliefs a person holds or the relative importance that he attaches to attitudinal and normative considerations. The external variables can affect behaviour only indirectly through other variables, and on the other hand, they are less stable than variables included in the TRA or the TPB. (Ajzen and Fishbein, 1980: 8-9, 82-85.; Fishbein and Ajzen, 1975: 343-351) However, it is possible to include additional variables, if it can be shown that they make a significant contribution to the explanation of behaviour (Ajzen, 1991: 199). This possibility has been used in some studies (e.g. Shaw and Shiu, 2002; Terry et al., 1999; Tonglet et al., 2004a).

2.2. Theory of Personal Normative Influences on Altruism

As Davies et al. (2002: 38) present, Schwartz's social-psychological model of altruistic behaviour "describes the process through which social and personal concerns combine to influence altruistic behaviour". The theory is based on three propositions. Firstly, the intensity of moral obligation affects an individual's altruistic behaviour. Secondly, when an individual's cognitive structure of norms and values is activated by some situation, the feelings of moral obligation are developed. Thirdly, those feelings can be neutralized, if the obligation in question does not feel appropriate. According to Schwartz, the personal norms mean the self-expectations which an individual has for different actions in different situations. If the personal norms are activated, they are "experienced as feelings of moral obligations, not as intentions". He specifies that unlike the social norms, the sanctions related to the personal norms are tied to the self-concept. Therefore, the feelings of moral obligation are strong, if the norms relevant to the situation are important to one's self-concept. (Schwartz, 1977: 227-233.)

Depending on the factors influencing the activation of personal norms, the impact of feelings of moral obligation on an individual's behaviour varies. One of the most important factors is the tendency to become aware of the consequences of one's behaviour for others (Awareness of Consequences, AC). A person with high AC is more likely to behave in accordance with his/her personal norms. However, those moral obligations may have no effect on behaviour. Various defences can be used to oppose and neutralize the obligations, depending on the personality and situational factors. This defensive tendency is termed Responsibility Denial (RD) or Ascription of Responsibility (AR). (Schwartz, 1977: 229-230.)

In sum, the process begins with the social norms regarding moral behaviour (see Figure 3). These norms represent the values and attitudes of significant others and they may be internalized to the personal norms. Nonetheless, it is the AC and the AR moderating the effect of personal norms. Furthermore, Schwartz poses that individual and situational factors affect the process (Schwartz, 1977: 241). Thus, "the central problem is to understand the process by which altruistic social norms translate into individual behaviour" (Davies et al., 2002: 38-39). Davies et al. (ibid: 101) established recycling as altruistic

behaviour and their results indicated that Schwartz' model predicts better recycling behaviour than either the TRA or the TPB.

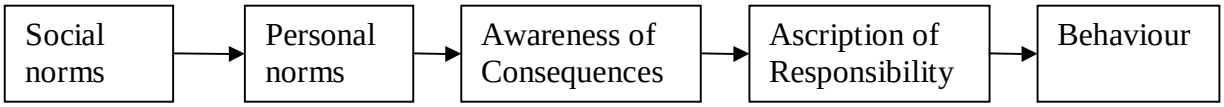

Figure 3. Schwartz's model of altruistic behaviour illustrated by Davies et al. (2002: 39)[2]

2.3. Multi-Attribute Models: Motivation-Ability-Opportunity-Behaviour Model, Model of Ecological Behaviour, and Integrated Model of Attitudes and Behaviour Choice

These multi-attribute models possess many similar features when compared with each other, but also with the previous models; at least the following theory has been influenced by the presented theories. Furthermore, the integrated model is a result of a study examining all those three models.

The first theory by Ölander and Thøgersen (1995) suggest that motivation, ability and opportunity should be included in the frame of reference when studying consumer behaviour with impact on the environment. In their model, the motivational factors consist of beliefs, which are influencing attitudes, and the social norms and attitudes, which in turn define consumer's intentions to act in a certain way (see Figure 4). Beliefs about an activity often change because of experience. Besides motivation, individual's abilities, i.e. knowledge and habits, are influencing the realization of intentions. People learn routines or habits which make them "capable of performing the task in a nearly automatic fashion, --". They may also lack important information or they are unable to understand the message of environmental information campaigns. Above all, one also needs to have opportunities to act in environmental-friendly manner. Ölander and Thøgersen see opportunities as "objective preconditions for the behaviour". They admit, however, that individuals may perceive the same conditions in different ways and, hence, see different possibilities. (Ölander and Thøgersen, 1995: 360-365.)

[2] For more detail, see (Schwartz, 1977: 241).

According to Niva et al. (1997) the model is indicating that besides reducing the lure of free riding a consumer also needs knowledge about why it is necessary to change one's behaviour (knowledge about nature) and how it is possible to protect the environment (practical information). The motivation may be faint to act in a certain manner when one does not know how and what one's action has impact on. Often it is also required to change habits and routines and to learn new way of action to act more in an environmental-friendly manner. (Kollmuss and Agyeman, 2002: 257.; Niva et al., 1997: 31.)

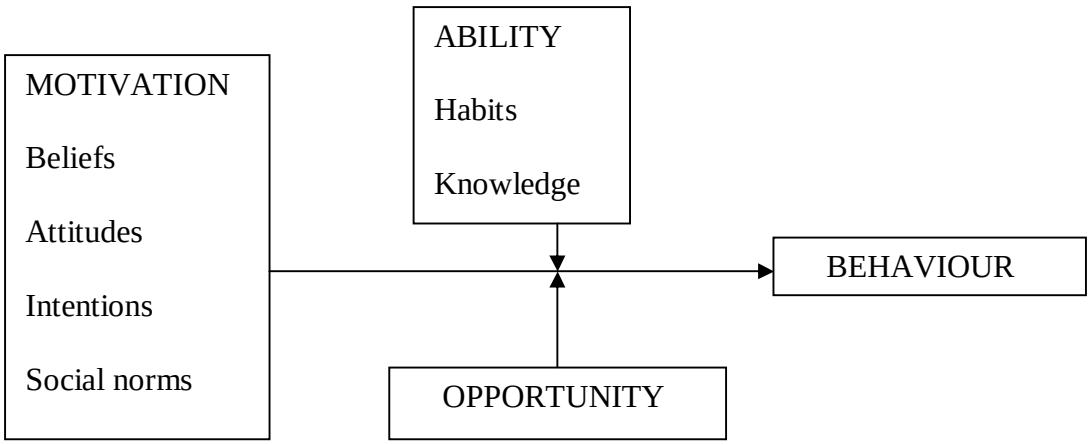

Figure 4. Motivation, abilities and opportunities influencing the behaviour. Model simplified by Niva, Heiskanen and Timonen (1997: 30).

The second model of Fietkau and Kessel (1981) is comprised of five variables influencing either directly or indirectly pro-environmental behaviour (see Figure 5). The variables are independent from each other and they can be influenced and changed. These variables are: attitude and values, possibilities to act ecologically (e.g. infrastructure), behavioural incentives (e.g. monetary savings), perceived feedback about ecological behaviour (intrinsic or extrinsic) and knowledge (modifies attitudes and values). (Fietkau and Kessel, 1981 as quoted in; Kollmuss and Agyeman, 2002: 246.)

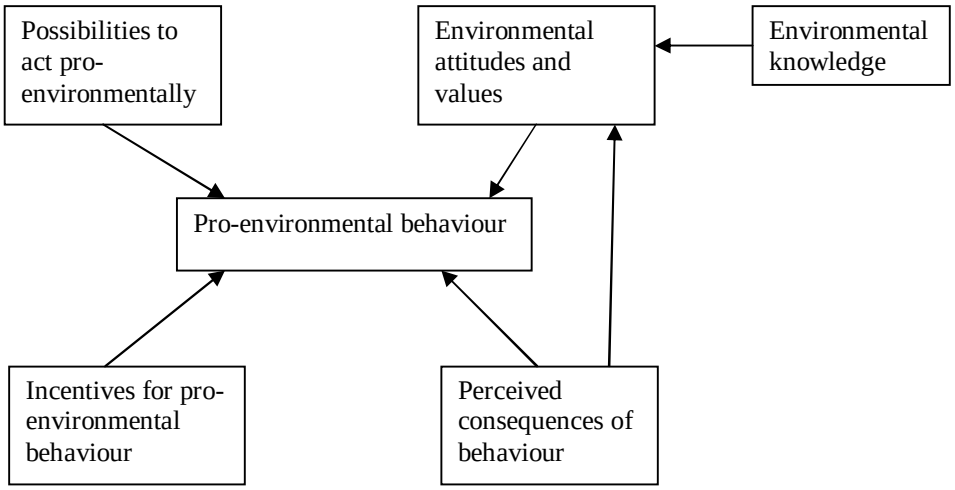

Figure 5. Model of ecological behaviour

The third model is as stated a finding from a research in which Davies et al. (2002) studied different models predicting behaviour. The integrated model is according to them predicting consumers' recycling behaviour "with a degree of sufficiency and accuracy that lacks from the models" they examined. The model bases on the assumption that "the moral correctness of the behaviour and the evaluation of the behaviour choices involved predict behaviour". (Davies et al., 2002: 84, 98.)

Davies et al. (2002) include the personal norms (beliefs about what is right and wrong) and the variable of affective evaluation of behaviour (the emotional feelings related to the behaviour) to their integrated model (see Figure 6). They see them important when predicting moral or ethical behaviour. Moreover, they suggest that affective evaluation should be included when examining emotionally charged behaviours, like recycling. The researchers found that the moral correctness of the behaviour is the paramount separating factor between recyclers and non-recycler: recyclers felt that it would go against their principles to waste anything that could be used again. The third variable, acceptance of responsibility, measures how much an individual feel that his/her behaviour affects and how much s/he is personally responsible for achieving the consequences of the behaviour. If an individual feels that his/her behaviour is effective and that s/he is personally responsible for the consequences, it is more likely that s/he will behave in a given manner. The social pressure to perform ethical or moral behaviour is measured with the subjective norm. Unlike in Schwartz' model (see chapter 2.2) in this model, it affects directly behaviour. The fifth variable, perceived behavioural control, measures how possible it is to an individual to act in certain way. In the model, attitudes consist of two components: one

measures how positively or negatively an individual supposes the outcome of a given behaviour; the other evaluates the different possibilities to behave in a given situation. To conclude, the researchers advance that demographic factors are significant predictors of recycling behaviour. (Davies et al., 2002: 98-102.)

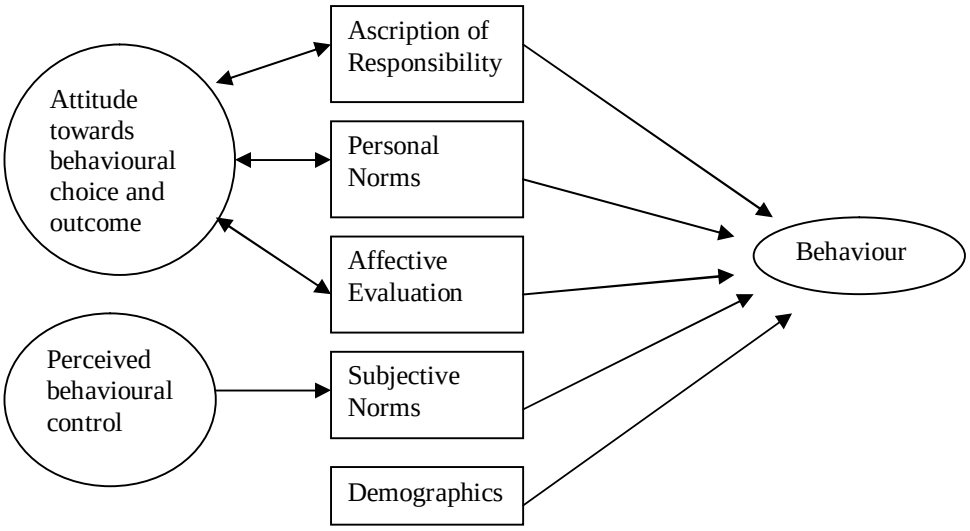

Figure 6. Integrated model of attitudes and behaviour choice (Davies et al., 2002: 85)

2.4. Way-of-Life Concept and Finnish Cultural Borderline

The way-of-life models place more emphasis on the social and cultural constraints of behaviour than economic models when studying people's everyday lives. They also stress the wholeness of human activities. The interdependence is stressed in two ways: first, the interdependence with the behaviour of other people via similar cultural values and norms; and secondly, the interdependence of human activities in different spheres of life, such as work and consumption. The way-of-life model is understood as a model of continuous emancipatory change. Thus, there are constant changes in the values and preferences, depending on the experiences people have from their activities in different life spheres. In Uusitalo's way-of-life approach, the social dependency of the consumption behaviour is the basic assumption. That is, environmentally harmful or harmless behaviour must be understood against the background of the cultural and the social norms and the ways of life rather than treated as an isolated individual decision. (Uusitalo, 1986b: 32-46.)

In this respect, the Finnish cultural borderlines are drawn to have a basis for comparison. As Talve (1979) demonstrates, Finland can be divided into two cultural areas: to the

western and the eastern area (see Figure 7). There are two the most important prehistorical groups of settlement in the background: the Finnish settlement in the south-west and the Karelian settlement in the east which were separated by inhabited wilderness. Both settlements had their own typical cultural features which spread to broader area with the expansion of settlement in the Middle Ages. (Talve, 1979: 318, 335)

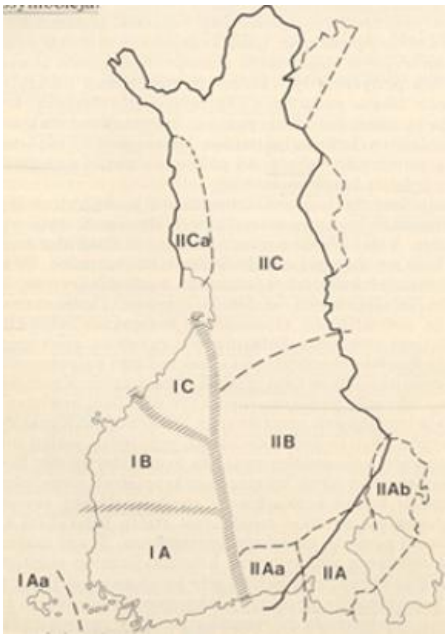

Figure 7. The borders and areas of Finnish folklore: I Western Finland: I A South-western Finland; I Aa the Åland Islands; I B South Ostrobothnia; I C Middle Ostrobothnia. II East and North Finland: II A South-eastern Finland; II Aa the west part of South-eastern Finland; II Ab Border-Karelia; II B Savo-Karelia; II C North Finland; II Ca the Tornio valley. {{36}}

Round the year 1000 there was quite a concise Finnish settlement in the south-western part of Finland, the Swedish Åland Islands included, and the Karelian area emerged to the best agricultural regions in the west coast of Ladoga in south-eastern Finland. The folklore of the both areas is based on the Proto-Finnic heritage, but their cultural contacts were directed at different directions. The eastern part was turning to the Slavic areas and the western part to Sweden. When south-western Finland joined ecclesiastically and in the national level to Sweden in the 13th century, the bond to Sweden strengthened. For Karelian's part, it was engaged to Orthodox Church and to the area of Novgorod since the 12th century. In the early Middle Ages, which ended to peace of Pähkinäsaari in Finland in 1323, the ecclesiastical and political incorporation of the country to Sweden was finished. The eastern part of the Karelian Isthmus and the coastal area of Ladoga were left to Novgorod and to the Orthodox Church. Middle and northern Ostrobothnia belonged politically to Novgorod but ecclesiastically to the rest of the Finland. (Talve, 1979: 279-283.)

2.5. Criticism - Rationality and Attitude-Behaviour Relationship

In economic thinking, rationality means that people can put things in order according to their preferences. This order is internally logical and it does not change, e.g., by a situation. It is also supposed that people behave as they think, in accordance with their preferences.

However, these assumptions have been criticised. (Uusitalo, 1992: 59.) Being rational may cause a contradiction between one's own benefit and the common benefit. Moisander points out that an individual's life situation may not be as simple as, e.g., the economic theory of rational choice expects. (Eräranta and Moisander, 2006: 21-28; Uusitalo, 1986a: 122.) When mobile phones are concerned, it could be supposed that the ease of recycling is an important criterion for a rational consumer. This could be the reason for free riding presented later on not the price. When the recycling fee is in the price of a new mobile phone the situation is different from the situation where one compares, e.g., the prices of organic food and "normal" food. There, the price is an important factor for free riding.

Edelman (2001) has suspected the whole assumption that humans are basically rational. We are often unable to see the whole picture, and so we make decisions that are based on a small part of the relevant total. According to Edelman, people are also sometimes deliberately misled; virtually all political groups and individuals benefit at times from misleading and inaccurate assumptions, and accordingly, they have an incentive to create and disseminate such beliefs. Misconceptions about what causes what and links among phenomena encourage support for misplaced actions that fail to address the causes of problems and which, hence, perpetuate the status quo. We look for some version that satisfies us as real and as stable and can be presented that way to the others. When a particular version serves our interests, we are likely to define reality in terms of that version. The versions that are motivated by self-interest are constantly reinforced as others are not: by the continuing need to justify one's own situation and actions, and also by reinforcement from others, whose self-interest is served by the same version. Behaviour is not usually result of individual rationality, but more of the herd spirit. (Edelman, 2001: 1-8.)

The rationality in consumer economics has been adopted from the new classical microeconomics. Timonen (2005) argues that the rational choice theory gives only one possible way to determine which consumer choices will be realized. The nature of rationality is always the same; consumer is expected to be aspiring after a maximal utility irrespective of the case and the situation. Furthermore, it is assumed that consumers have thorough information about, e.g., prices; consumers calculate rationally how to use their limited incomes; and the decisions are made independently of other people. Timonen prefers 'everyday reasoning' to the typical approach of rationality; in stead of optimising,

everyday reasoning sees rationality as a process of simplifying information. (Timonen, 2005.) The aim is to achieve a good enough outcome (Simon, 1978). Timonen (ibid.) explains that people behave and consume in a continuing dynamic change as they see best adapting, experimenting and inspiring.

Keeping all that in mind, let us focus on the green consumer thinking. It began gaining more ground in the 1980's, as people started to notice the relations between consumption and the environment. People wanted to consume in a way that would be less harmful for the environment. Nowadays, people are more aware of consumption's environmental impacts and that it is necessary to change consumption patterns as well as lifestyle. (Tulokas, 2002: 7.)

Usually a consumer is described as a person buying subjects and services for his/her personal use. In economics, a person is seen as a rational behaving Homo Economicus, meaning in consumer theories a person who can choose rationally. (Heinonen and Raijas, 2005: 9.) The concept of a green consumer is usually meaning a consumer whose consumption's quantity or quality is affected by his consciousness of environmental problems. A green consumer can also be politically active trying to affect the society such as by boycotting environmentally harmful products. A consumer can be a green consumer in various ways; some are more and some are less green. (Ahonen, 2006: 73-74.)

Moisander (2001) criticizes a one-dimensional concept of green consumerism, where a green consumer is seen as "a rational goal-oriented moral agent". This kind of approach can be seen in many theories presented in this thesis. By contrast Moisander suggests that:

> ...green consumerism is a multidimensional social phenomenon that involves a range of culturally shared meanings associated with social and political concerns, moral values, and personal goals, ranging from being a fairly conservative and socially exemplary moral actor to pursuing a radical environmentalist political agenda. (Moisander, 2001: 253-254.)

Moisander argues that green consumerism has a socially responsible nature, thus, a consumer is confused by two different aims: satisfying his/her needs and those of the society. All in all, the ways to be a green consumer are myriad; besides the quality also the quantity varies depending on a person (Moisander, 1996: 25-31). In short, a green consumer has chosen the way of life which is more sustainable than the average.

Do the “green” thoughts, then, always come to fruition? According to Rynning, these thoughts, i.e. attitudes, in consumption theories are considered as relatively stable evaluation of, e.g., a product. Attitudes are developed as a part of personality developing process, where culture has an important effect. (Rynning, 1992.) Environmental attitudes arise from the relationship between a human and the nature (Lankinen and Sairinen, 2000: 9).

Many theories examining behaviour include attitude-behaviour relationship. However, it should be noticed that positive attitude towards environment does not always lead to pro-environmental behaviour, as it is seen e.g. in Ahonen’s study. The contradiction between attitudes and environmental-friendly behaviour has been explained by individual’s weakness or by attitudes’ falsehood. (Ahonen, 2006: 74-78.) Also, it has been pointed out that this contradiction does not necessarily have to be a problem or a question of conscience to an individual. In Karisto’s point of view, the loose connection between attitudes and behaviour is typical to our time. (Karisto, 2006: 124.) Sometimes, it is hard to understand the consequences of one’s behaviour; people do not know in which manner their single actions may affect the environmental problems (Uusitalo, 1992: 62). Moisander (1996: 32) has likewise brought out that though being informed a consumer may perceive that it is difficult to identify and understand the consequences of their actions.

The Finnish environmental attitude study released in 2002 also reveals that environmental-friendly behaviour is not as common as it should be when compared to positive attitudes towards environmental protection. Tulokas reminds of free riding, which is discussed later, but also she points out that some people are not sure how to behave in an environmentally conscious manner. (Tulokas, 2002: 36.) Pieters supports this view. He argues that if an individual’s knowledge about, e.g., recycling is lower than s/he thinks, “a high motivation does not result in high-quality performance”. For instance, an individual may unintentionally separate his/her garbage incorrectly. Pieters summarizes that: “In general, an inconsistency between attitudes/intentions and performance may emerge in situations of low ability, particularly when consumers lack feedback about their performance”. (Pieters, 1991: 69.)

To conclude, Lybäck (2002) has presented various reasons to this contradiction. Besides some already mentioned, she has pointed out that some people assume wrongly that they behave in a environmentally conscious manner or that technology solves the problems, thus no changing in behaviour is needed. Lybäck also defines that some can feel it meaningless to change behaviour since it has no effect on the state of the environment. This may be related to insufficient information, or the stream of information, which can leave an individual uncertain about what should be done. Consistent with, e.g., the TPB, the pressure from social surroundings can direct an individual to behave contrary to his/her attitudes and principals. Furthermore, it is not possible to behave always in accordance with one's attitudes. For instance, if there is not a recycling point nearby and a person does not own a car to drive to the nearest point, it is not possible to recycle (objective view). Maybe it would be possible to recycle using a bicycle, but if it feels too inconvenient, an individual considers recycling impossible (subjective view). (Lybäck, 2002.)

One point of view is that attitudes can be illogical with each others; people tend to support good things in principle while willing to do as little sacrifices as possible. People want that others behave pro-environmentally, but they self want to enjoy only of the results. This is called the free rider -problem. This may due to different reasons, besides pursuiting of one's own benefit or lacking social norms, some may think that one's behaviour, or change in it, is marginal to the solution of an environmental problem. (Uusitalo, 1992: 60-65.) The individual consumer who does not adopt environmentally responsible behaviour is - from his/her individual point of view - acting rationally but the final outcome, when all consumers act similarly, is not the best possible for anyone. (Uusitalo, 1986b: 23.)

This dilemma of economic choice theory is called as the prisoner's dilemma. It stresses the interdependence of people's choices and questions the fact that people are able to "calculate" the best outcome. For example, from an individual point of view not using returnable bottles is not that harmful to the environment. If an individual is interested in the environment, but is being lazy at this point, and also everybody else is acting similarly, we are in a situation called prisoners' dilemma. Everybody is behaving as they see it is the best for them selves although the situation where everybody would act pro-environmentally is thought the best of all options. (Uusitalo, 1986b: 23-25; Uusitalo, 1990.) According to Uusitalo, it is the social norms and laws usually guaranteeing that also other people behave in a way that best for all (Uusitalo, 1986a: 6).

To change people's behaviour, information is needed. However, it is not always available. In some questions, answers may be revealed too late, thus, the social norms are also needed. These norms, which guide how one should behave in different situations, are learned in interaction with others. Living by these norms, does not require understanding of the cause-effect -relations. According to Uusitalo, the changing society has loosened norms. Also, the mobility (both geographical and social) has weakened the social norms, interactions have become shorter and more occasional, thus, nonspoken promises and threats are less believable in society. As an example, littering can be restrained by presence of other people, i.e., by the social control. Green consumers behave pro-environmentally regardless of the presence of other people. They have internalized the norm in question, thus, they do not need external sanctions. (Uusitalo, 1992: 62-65.)

Diekmann and Preisendoerfer (1992) explain the discrepancy between environmental attitude and pro-environmental behaviour by using a low-cost/high-cost model. According to the researchers, the pro-environmental behaviours that demand the least cost (e.g. time and effort) are performed, i.e. people may recycle but do not use bus. In sum, the discrepancy is between pro-environmental attitudes and high-cost pro-environmental behaviours. (Diekmann and Preisendoerfer, 1992 as quoted in; Kollmuss and Agyeman, 2002: 252.) To conclude, though pro-environmental attitudes predict badly pro-environmental behaviour, they add the likelihood that a person behaves environmental-friendly (Uusitalo, 1986a: 113).

2.6. Theoretical Framework and Operationalisation

Although the kind of attitude-behaviour relationship models presented in this study are criticized (e.g. Moisander 2001:52) being narrow, I use an adapted model as a backbone of this study. The previous models have pointed out many variables influencing the behaviour, but the models are not used as such. Instead, their best variables for the study are used. Besides the models, one study (Kollmuss and Agyeman, 2002) that aimed at finding out the best variables to understand the pro-environmental behaviour is applied. Using the following themes the questionnaire was forged (see Appendix 1: Questionnaire).

Knowledge or more specifically environmental **knowledge** is fluctuatedly supported. On one hand, Kolmuss and Agyeman (2002: 250) have concluded that direct influence of

environmental knowledge to behaviour is very small. On the other hand, e.g. Tonglet et al. (2004b: 210) present that knowledge is a significant predictor of recycling. Nevertheless, it is interesting to know whether people know about the WEEE directive since it has been (in the beginning of the questioning process) in force only about year and a half. I have also noticed that knowledge is sometimes hard to find: e.g. the takeback points can be behind many internet links. Furthermore, every day's information flood is quite big. According to Heikkinen et al. (2004) fifty percent of the respondents in Oulu and forty percent in Helsinki knew where a collection point is for WEEE. The respondents' knowledge about the collection points was clearly lower than their other environmental knowledge (Heikkinen et al., 2004: 50). In this respect, the questions number 2c, 7-9 and 17a&b were formulated. As a source of information, the **campaign** by Nokia and the WWF was also incorporated to the questionnaire (question 10). Moreover, it was interesting to find out whether people had heard about the campaign and to know their opinions about it.

A green consumer probably notice and learn easier the new information about, e.g., recycling than so called average person. At the same time, s/he is also probably more willing to have trouble in doing so. It could be assumed that a green consumer's environmental values (the primary motives engaging in a whole set of behaviours) are not overridden so easily by personal comfort (the selective motives influencing one specific action) (Kollmuss and Agyeman, 2002: 250). **Attitudes** toward environmental issues and daily behaviour, such as recycling, using busses instead one's own car and buying ecologically farmed products, uncover a green consumer. Ajzen and Driver (1992) suggest that attitudes compose of two components; affective and instrumental. Affective component is relating to feelings and instrumental based on knowledge (Ajzen and Driver, 1992). In other words, if an individual thinks recycling is good for the environment and s/he feels that it is, e.g., useful to recycle, their attitude is positive towards recycling. Though there can be a contradiction between attitudes and behaviour, some studies have found attitudes to be significant predictors of recycling behaviour (e.g. Tonglet et al. 2004b: 212) and therefore they are included. There is another conflict between different studies about the significance of the **personal norm** (or the moral norm) (Davies et al., 2002; Tonglet et al., 2004b). I'm convinced, however, that these moral beliefs about correctness of performing a given behaviour have an impact on recycling behaviour. I imagine that besides attitudes an individual's habits may reflect them, at least partly. To

establish them and the **moral norms** of the respondents, two questions were posed: 4a and 5.

How do people **behave**? Have they returned their old mobile phones to recycling? Or do they keep them in case of a need? Or does the phone possibly belong to individual's employer and the individual himself have no power on it? According to the study made by Heikkinen et al. (2004) 22 % of the respondents used a mobile phone belonging to their workplace (Heikkinen et al., 2004: 25.) I would also like to know if people recycle in general. Do they have a habit of recycling? Kollmuss and Agyeman (2002: 257) believe that old **habits** form a very strong barrier. Heikkinen et al. (2004: 68) also found that 33 % of the respondents in Helsinki and 40 % of the respondents in Oulu thought that their habits were the block, at least to some point. As background information, but also to determine **behaviour** in relation to mobile phones, questions about how, where, why and how often people replace their old mobile phones were put (questions: 1, 2a&b, 3, 4b, 25a&b). As it was interesting to know whether the respondents had recycling **habits**, two questions were asked: 11 and 12a.

Past experience is found out to influence recycling behaviour (Terry et al., 1999: 234; Tonglet et al., 2004b: 212); however, this influence has been questioned by Davies et al. (2002: 89). Still, I do believe that past experience in recycling in general do have a positive impact on recycling mobile phones maybe through attitudes as Tonglet et al. (2004b) point out. This factor was defined with question 12b.

Relating maybe to all of these variables, there is a variable that has been proposed to be an important addition to the TPB and to the TRA (Shaw and Shiu, 2002; Sparks and Shepherd, 1992; Terry et al., 1999). This variable is **self-identity** which measures how important it is to perform in a given way to one's self-concept. I believe that if recycling is an important part of an individual's everyday life also this kind of more specific type of it is. This variable may be important when it comes to green consumers. I believe that when recycling is a part of self-identity, a person tries to recycle everything that is possible. To learn about the relevance of non-recycling to self-identity question number 14 was asked.

Do people consider that recycling is easy? Or do they imagine that it is difficult and, therefore, do not recycle (**perceived behavioural control**)? Ölander and Thøgersen have

hypothesized that beforehand some people overestimate the costs relating to, e.g., recycling. These prejudices change when experience in recycling is gained and, thus, the researchers call it "experience effect". (Ölander and Thøgersen, 1995: 353.) All in all, effort, meaning PBC, moderates strongly the relationship between attitude and behaviour (Schultz and Oskamp, 1996: 381). How about the **actual control**? The situation in which a given behaviour takes place has a direct effect on the behaviour; people are constrained by physical, temporal, institutional, spatial, social and financial factors. (Davies et al., 2002: 40.) Heikkinen et al. (2004: 66) are supporting this view, they found that fifty percent of the respondents in Helsinki and forty percent in Oulu thought that there is a lack of recycling opportunities or that it is a bit inconvenient. So, is the infrastructure adequate for recycling? In this case, one could imagine that not owning a car or a sufficient storage space do not have that much affect as mobile phones are small. But the time and distance to takeback point can be, at least in small towns and in the countryside. Does it have to be easy? Is it enough to feel good when doing something pro-environmental or should there be some incentive to do it like a deposit or a donation to charity as there is in the takeback campaign of Nokia and the WWF? In relation to behaviour, ease of a given behaviour affects the willingness to perform it. Actual control, meaning a distinct possibility of recycling in this case, was defined with question 2d.

According to Kollmuss and Agyeman (2002: 251) "values are responsible for shaping much of our intrinsic motivation". The values in turn, are most influenced by 'micro system' consisting of the immediate social net (e.g. family and neighbours) and to a lesser extent by the 'ecosystem' (e.g. the media and political organizations). The 'macro system', i.e. the cultural context in which the individual lives in, affects values the least. (Fuhrer et al., 1995 as quoted in; Kollmuss and Agyeman, 2002: 251.) In short, it is thought that people surrounding an individual are influencing his/her behaviour just like the **subjective norm** is pointing out. One would think that it is the subjective norm that prevents an individual disposing his old mobile phone in the garbage. Do others' opinions really have an effect on this or is it just the possible need that is preventing the disposing of the phone? I think that an individual's occupational reference group can have a huge impact on when we are talking about the subjective norm as an individual spends most of his/her time with them: behaviour and thoughts of people close to us have an effect on us. Could it be seen among the respondents who had recycled their phones (questions 15 and 16a&b)?

Based on the suggestion of previous TPB studies, Tonglet et al. (2004b) incorporated an additional component, **consequences**, into the TPB. Consequences measure the costs and benefits of recycling behaviour (Tonglet et al., 2004b: 199). These suggestions get support from Fietkau's and Kessel's (1981) model which includes, among others, behavioural incentives and perceived feedback about ecological behaviour (as quoted in Kollmuss and Agyeman, 2002: 246). Especially when a consumer is considering starting recycling, the expected costs affect significantly to the intention (Pieters, 1991: 68). Also according to Brand (1997) there seems to be broad consensus that personal values, situational contexts, infrastructural deficits and financial incentives play a more important role than knowledge, affectedness and environmental attitudes. Next to costs, time, effort, inconvenience and other everyday life barriers, cultural habits and value preferences play a crucial role. Everyday life takes place within different situational contexts (professional work, housework, leisure etc.) this produces the heterogeneity of patterns of environmental behaviour. (Brand, 1997: 207-213.) In sum, when a person recycles, what is the outcome that motivates or demotivates to continue recycling? This was asked directly with questions 6 and 13.

Demographic factors, such as age, gender, education and income, may have an effect on recycling behaviour. According to Kollmuss and Agyeman (2002: 248), at least two of these factors have been found to influence environmental attitudes and pro-environmental behaviour: gender and years of education. Also Davies et al. (2002: 102) found that demographics are a significant predictor of recycling behaviour; according to them recyclers are better educated and married. It should be noted, however, that the influence of demographic factors on recycling may be mediated by the access to recycling services (Berger, 1997), i.e., some social groups may live in an area which is better provided with recycling services than some other area. Demographic factors are examined in the questionnaire with questions 18-24.

According to Brand (1997) social action is always tied up in specific societal contexts, which determine the perception of problems, standardize behaviour and generate distinct social patterns. He points out that ties to sociocultural contexts are especially relevant for environmental problems, which in most cases are accessible only through second-hand information: frames and symbols mediated by the mass media, expert opinions or controversial scientific and political debates. The most general context of environmental

consciousness and behaviour in the structural and cultural setting of a given society: degree of industrialization, level of affluence, cultural traditions, political order etc. For every country, these various aspects of macro structural context combine to form a specific model of society influencing ways of life and ways of experiencing reality. (Brand, 1997: 208-213.) For this reason the **cultural aspects** were included into my study. To see if there are cultural differences the information about the respondents' hometowns was needed (question number 20). This cultural approach is supported by Kolmuss and Agyeman. They have noted that the cultural norms are important factors affecting behaviour (Kollmuss and Agyeman, 2002: 249).

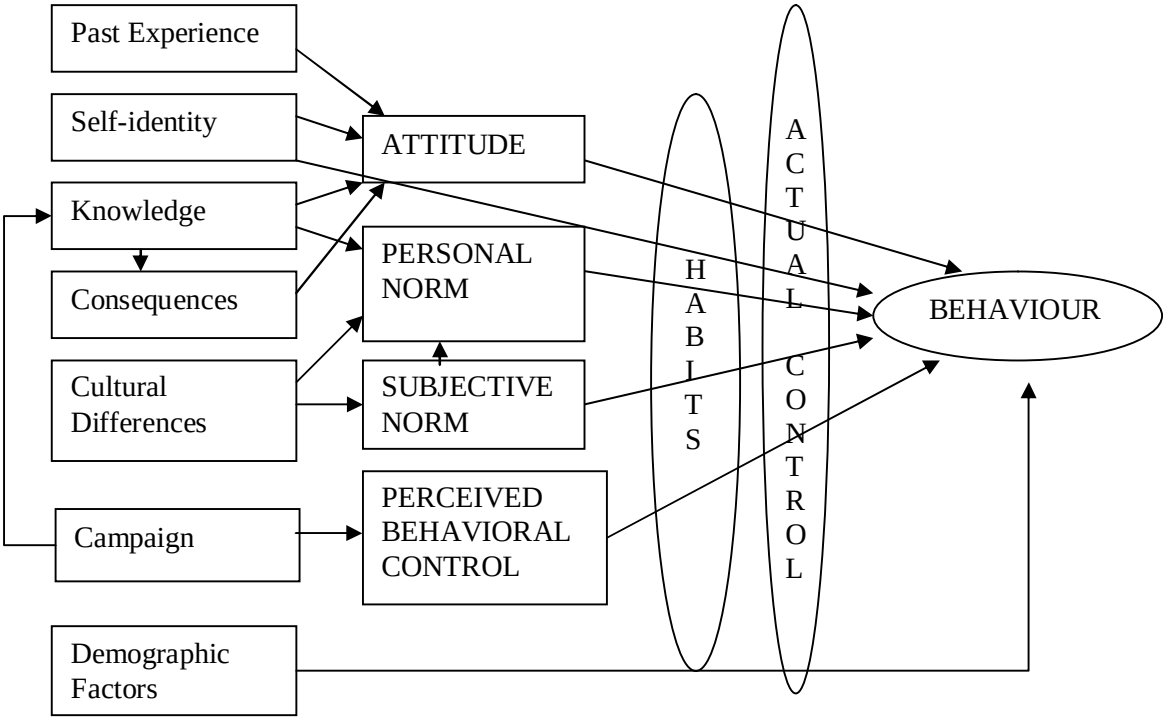

Figure 8. Behaviour model of the study

In the behaviour model of the study presented in Figure 8, the factors influencing attitude are past experience, self-identity, knowledge and consequences. Knowledge also affects consequences. In my opinion self-identity can influence behaviour also directly. The personal norms are influenced by knowledge and cultural differences, but also partly by the subjective norms. As Ölander and Thøgersen (1995: 353) note, the subjective norms are important mostly when new ways of behave emerge, but if the behaviour is recurrent, it becomes part of one's personal norms. In contrast, the subjective norms are influenced

only by cultural differences. In the model, campaign is the only factor affecting the perceived behavioural control (PCB), although also knowledge could have an effect on the PCB. Besides the PCB, the campaign is also affecting knowledge. Demographic factors are affecting behaviour directly.

It should be noticed, however, that all of these factors have to pass habits and actual control to affect the behaviour. That is although, e.g., attitudes affect habits it may take a while to change the habits when attitudes change. Actual control means, e.g., insufficient infrastructure to recycle, on this variable an individual has only a little influence or nothing at all. As Pieters has suggested in his model where ability, including task knowledge and habit, moderates the relationship between motivation and performance (Pieters, 1991: 65), in the model of this study, habits and actual control are moderating the effects of other variables. It should be noted that this study does not examine the relevance or the functionality of the model, but the model was used mainly to create a reasonable questionnaire.

3. Material and Methods

The material comes from questionnaires filled by randomly selected people mainly in shopping centres in Helsinki, Turku (the campaign cities of Nokia and the WWF) and in the streets of Lappeenranta. Lappeenranta was selected to represent the eastern cultural area in Finland. The town is situated near the border of Finland and Russia. It is the 11th biggest city in Finland with about 59,000 inhabitants. As for the timing, though one question investigated the campaign organized by Nokia and the WWF in December and February, the purpose was not to compare people's awareness before and after the campaign. Therefore, the collection of data was not done in order to fulfil these kind of expectations; thus, it was done at the end of the campaign in February and after, in the beginning of March. Although the study was made in three cities, people also outside them where included. The material is divided into three according to the respondents' hometown and compared also based on the cultural borderline in Figure 7. This division was done to notice possible cultural differences when comparing the answers in eastern and western Finland, but also when comparing the capital city area to others.

Although the study is not representative, I tried to have different kinds of people, for instance, by collecting the data at different times. I also tried to have the same number of women and men as well as people from different age groups. The sample size was planned to be sixty as a whole, meaning twenty questionnaires in each research city. I started my data collection in Helsinki and it was completed in Lappeenranta, where there were not as good places for collecting data as were in Helsinki and Turku. The responding willingness being a lot lower, I was not able to have all middle-aged men that was planned to fill in the questionnaires. As a result, 18 questionnaires were filled in Lappeenranta. Down to this, the total number is 58 instead of sixty.

Based on the feedback I have had and based on the piloting of the questionnaires, I have used self-administrated questionnaires, meaning that the respondents themselves filled in the questionnaires. However, three questionnaires were filled in interview-administrated manner, because the respondents did not have glasses with them. With those interviews, as well as, during the whole enquiry process, I tried not to influence the respondents, though some of them tried to tease out the "correct" answers from me. The questionnaires where quite quick to fill in, when I tested them it took about five to ten minutes. However, in

reality it took sometimes more than that, especially among older women. The questionnaires were partly structured and partly half structured (Eskola and Suoranta, 2001: 86). To make sure not to rule out any possible answers, the closed questions (structured questions) had an open-ended option (Other). To increase validity and to ensure that it would not take too long to fill in the questionnaires, they were tested during the creation process. Also reliability was reckoned with, some factors (not all to keep the questionnaire short), e.g. recycling behaviour, was examined with two questions. (Alkula et al., 1999: 89-95.)

As supplementary material, there is the internal survey of Nokia. These results are rather a point of comparison than equal material because the results are supposedly biased, and the meaning is to describe more or less a typical Finnish mobile phone owner. A rough summary was made and a comparison to the results.

Although the results cannot be generalized, the sample size being 58, the meaning is to peek at the thoughts of an average person. Thus, I could imagine that the sample, or better termed as the specimen (Eskola and Suoranta, 2001: 18), is reflecting on some level the thoughts of Finnish people as a whole. Moreover, the comparison with the results from the Nokia survey and other similar research results gives an opportunity to better generalize, or to extrapolate as Alasuutari (1995: 157) names it, from the results.

The study is mainly qualitative, i.e. themes presented later on are based on qualitative coding, but there are quantitative elements. This kind of enquiry is not typical of the qualitative method, but at the same time, the sample size does not meet the demands of the quantitative method, if one wants to determine the concept of a typical Finnish recycler. Admitting, the sample being small this study is indicative. In sum, the main approach is qualitative, but it is supported by the quantitative analysis. This kind of study approach was decided to execute as the mobile phone recycling behaviour has not been much studied.

This kind of approach is possible, if the answers, or the results, of questionnaires are examined both as indicators and testimonies. With an indicator Alasuutari (1995, see also (Alasuutari, 1999) means information that is used as indirect evidence to a question which a study is seeking an answer for. In the testimony approach, a source of information (a respondent) can be seen as a testimony about what is studied. The same source can be used

as an indicator and a testimony alike. To improve the study's truthfulness, the mechanistic method can be adopted. The main idea is to restrict the information given to the respondents. Due to the mechanistic method, the answers gained can be considered reliable. According to Alasuutari, a typical survey can be regarded as belonging to the indicator approach because a researcher is not asking directly from the respondents about the matter s/he is trying to shed light on. A researcher may ask about, for instance, the age or hobbies from the respondents. The statistical relations between the answers (e.g. age and recycling behaviour) can be seen as evidence proving a theory correct or incorrect. (Alasuutari, 1995: 51-54.)

Töttö has used a term 'semiotic analysis', when it is reviewed what, how and how much people talk about the matter being studied, but the causal questions are not answered. "The talk" must be understood quite freely as writing etc. In this respect, Töttö considers that, e.g., cross-tabulation can be used in qualitative analysis. (Töttö, 2000: 85-86, 119-120.) Furthermore, Silverman has advocated the use of simple counting techniques in qualitative research, where appropriate:

> Instead of taking the researcher's word for it, the reader has a chance to gain a sense of the flavour of the data as a whole. In turn, researchers are able to test and to revise their generalizations, removing nagging doubts about the accuracy of their impressions about the data. (Silverman, 2000: 185.)

Thus, to produce statistical relations, I have used cross-tabulation, which does not demand any special scale from a variable (Heikkilä, 2002: 183). The sample is not representative, as I pointed out earlier, so the results cannot be generalized. However, the results can be used as clues in unriddling, if the statistical relations are strong (Alasuutari, 1995: 131).

The analysis started by qualitative coding, in which the programme Atlas.ti was used. As the questionnaire is based on the theoretical framework explained in chapter 2.5, and therefore, the coded answers being mainly accordant with its themes, I perceived that the answers gathered were to be coded consistent with it. Apart from few exceptions, it was clear that the themes in the questionnaire should guide the coding. Thus, the analysis is grounded on the theoretical framework. Trying to be open to any information, at the beginning I coded the answers using very small categories. As the bigger picture was revealed, the codes (see Appendix 2: Code Frequencies, in Finnish) where changed to better present the answers to the questions. They were also categorized to families and

super-families to produce bigger units (see Appendix 3: Code Families, in Finnish). The themes presented later on are based on those families and super-families, but also on the theoretical framework. Within these themes the main features of the "groups" (non-recyclers and recyclers) are described and some relations are shown using the cross-tabulation, but some exceptions are also presented to show the variety of the answers used as tools for more inventive creation of, e.g., a recycling campaign. All in all, the themes, except for the demographic factors and the cultural approach, are the products of the qualitative coding, which also influenced quantitative categorizing. This means that the codes were used as a basis for the quantitative classification though a bit simplified, therefore, their frequencies are largely presented using the data produced by SPSS.

To conclude, one way of seeing this study is that it is applied. Applied research institutionally means a study that tries to find new and innovative knowledge which will serve some practical aim. However, this a bit causal related way of thinking has been proved to be too narrow. Admitting these studies usually being comprehensive, it cannot be claimed that this study is really applied. (Rolin et al., 2006: 7- 14.) But the main idea is the same; this study tries to offer information that would be useful when new decisions about, e.g., takeback points and possible campaigns are made.

3.1. Respondents

To have as much representative sample as possible, though sample being small, quotas were used. The respondents were chosen by gender and age as it was tried to have a heterogeneous sample. As Töttö (Töttö, 2000: 54) has pointed out, big sample does not necessarily mean that it is representative. The aim was to have an equal number of men and women answer the questionnaire. However, due to a little miscalculation, one extra woman was interviewed in Helsinki instead of a man, and in Lappeenranta the middle aged men were too busy to answer to the questionnaire causing a lack of two men. As a result, women represent 53% of the respondents and men 47%. Almost half of the respondents were under 35 years old (45%); approximately one fourth were from 35 to 50 years of age and one third over 50 years. The youngest respondent was 17 years old and the oldest 76 years old, the mean being 40.02 years. There are two modes: 22 and 58 years. The median is 37 years.

Most were educated in university or in other institutes of higher education. Yet, this is not entirely true, since some still studying at university answered as if they already had a university degree. There were no big differences between education distributions; the smallest group was the ones having no degrees after comprehensive school (14%). All the other groups (e.g. vocational school degree and polytechnic degree) cover roughly one fourth of the respondents. When asked about the respondents' situation in life, 31% replied being students. Almost as many were working full time (28%). The third biggest group was pensioners with 17%. Some students answered also working part-time, but they were classified only as students, as it is their main occupation. As there were many students among the respondents but also some unemployed people and pensioners, 41% reported earning fewer than 2,000 euros; 38% answered earning something between 2,000 and 4,000 euros. The households consisted ordinarily of one individual (40%). Two-member households were 29%.

Though questionnaires were filled in three cities, the respondents lived in 23 towns. Even so, the respondents are distributed as planned: 35% lived in the capital city area; 35% in western Finland and 31% in eastern Finland. It should be noted that one man was originally from, if I remember correctly, the United Kingdom (Male, 38, wF).

4. Results and Discussion – Mobile Phone Recycling

Before going into more detail, the picture of mobile phone usage and possession is drawn. It seems that it is general to have old mobile phones at home whether they are still in use or not. When asked what people do with their old mobile phones, most of the respondents answered that they store phones at home (see Table 1), which is consistent with the survey conducted by Accenture in Europe (Nokia Environmental Report: 53) and Nokia internal survey (see 1.4). Also according to Nokia's worldwide calculations (11/2006) and Mobile Muster's study in Australia, about half of the old phones are found in people's drawers. Furthermore, when asked how many old phones the respondents possess, even almost four fifths responded having one or more phones; so did also the respondents who had recycled their phone(s) (see Appendix 4: Tables). This was more general than in the study of Heikkinen et al. (2004: 112) presented in chapter 1.4 , they calculated that about one fifth kept old phones at home. But the finding of this study corresponds to the Nokia internal survey, where as many as 87% had at least one old phone at home.

The next common thing was giving a phone to someone, as it was also in the Finnish study made by Heikkinen et al. (ibid.) though to a lesser degree (19%). In other studies the percentage has been from 12 (Nokia intrasurvey) to 18 in Accenture survey. When Heikkinen et al. discovered that leaving phones to stores was the most general act (about 35%), in this study it was in the third place; one fifth had left their phones to stores which is more consistent with Nokia's finding (11/2006: 27%). The fourth favourite thing to do was recycling: 11% had recycled their phones[3], which is more than Nokia (11/2006) had discovered worldwide (2%), but is similar to findings in Europe (Nokia Environmental Report 2004: 53) and in the Nokia internal survey. Some had sold them; this was relatively as popular as discovered by Heikkinen et al. (ibid.). However, there are people having no extra phones at home; roughly one fourth replied having no used mobile phones at home (13% in Nokia intrasurvey).

The respondents seem to be motivated to recycle, since, consistent with the Nokia internal survey results, they are not willing to dispose the disused phones. Only one respondent answered 'yes' when asked if mobile phones can be disposed of with mixed waste.

[3] One answer is an airing; therefore, recycling being still in the third place the recycling percentage is nine.

Moreover, only two had put a mobile phone with mixed waste, however, the other without a battery. This fact is also quite equivalent with the Finnish study findings; according to the results some three percent had put a phone with mixed waste, which is maybe a consequence of people knowing well the environmental facts connected to devices (Heikkinen et al., 2004: 117-118). In this study, the same is shown later as a reason to recycle mobile phones.

Table 1. The fate of mobile phones

		Responses		Percent of Respondents b)
		N	Percent	
What have you done with your old phones?[a]	I keep old mobile phones at home	33	42,3%	61,1%
	I give them e.g. to a friend or a relative	22	28,2%	40,7%
	I sell them	4	5,1%	7,4%
	I leave them to store	11	14,1%	20,4%
	I recycle them	6	7,7%	11,1%
	Other	2	2,6%	3,7%
Total		78	100,0%	144,4%

a. Dichotomy group tabulated at value 1. b. Multiple response question N=54

If hypothesized that the number of mobile phones in use in respondent's households, is broadly consistent with the number of family members having a phone (see Appendix 4: Tables), there are generally two phones in a household. This coincides with the Finnish official statistics (Tilastokeskus. 2.3.2007). Unsurprisingly, it is next common that there is only one phone in a household. Contrary to the statistics, four phone households take the third place. Usually everybody in a family has a mobile phone, some even two if a person has also a phone from work. But mainly mobile phones are people's own; roughly one fourth used a phone which belongs to an employer (see Appendix 4: Tables). The figure is quite near to the percentage (22) of the Finnish study released in 2004 (Heikkinen et al., 2004: 25). Naturally, this percentage is far higher in the internal survey.

Normally, phones are replaced at 3-year intervals, which coincides the calculation of Finnish Consumer Office (Kuluttajavirasto. 31.5.2007), or less frequently (see Appendix 4: Tables). Almost as usual was replacing a phone at 2-year intervals. Though being a small sample a trend can be seen, the replacement interval of mobile phones becomes longer

with age. Most of the under 35-year-olds answered replacing a phone either at 2-year intervals or 3-year intervals, where as for people from 35 to 50 years old the interval was three years and for people over fifty it was more than three years. Similarly, the respondents having recycled their mobile phone(s) replied replacing them a bit more frequently than those who had not.

There can be various reasons for disposing of products; one of them is the product-related reasons, which can be divided into two categories: technical aging based on the defects in the durables, and relative aging which refer to the fact that new products coming to the market have superior technical, functional or psychological properties to the ones already in use. (Uusitalo, 1986b: 103.) Most often phones were displaced because they do not work (i.e. technical aging) (see Table 2). Second important reason for replacement was that newer models possess some desirable qualities (i.e. relative aging). Some considered things in more economic manner; one respondent commented that it is less expensive to buy a new cheap phone than a new battery.

Table 2. Reasons for replacing a phone

		Responses		Percent of Respondents b)
		N	Percent	
Why did you replace a phone?[a]	Old one does not work	45	68,2%	77,6%
	Work phone	4	6,1%	6,9%
	New models have qualities I wish	13	19,7%	22,4%
	Give variety	3	4,5%	5,2%
	Battery clapped-out	1	1,5%	1,7%
Total		66	100,0%	113,8%

a. Dichotomy group tabulated at value 1. b. Multiple response question N=58

4.1. Recycling Behaviour

Now as the recycling intensity of mobile phones is presented, it is time to describe the factors behind it. Apart from some respondent who had recycled their used mobile phones, the respondents had various reasons for not having recycled the phones. The arguments, for phones landing somewhere else than recycling, are divided to reasons why phones are not recycled and to reasons why they are at home.

It is natural that the main explanation for not recycling was that phones are kept as spare phones (see Table 3). The fact that a respondent did not know where to take a used mobile phone was the second most important reason as it was also in the internal study. Due to perhaps laziness or the small size of the devices, some answered that they have not yet got around to recycling. The variable other consists of reasons such as: *"I am not sure if it can be fixed"* (Male, 20, western Finland), *"I did not know they can be recycled"* (Female, 27, wF) and *"Well, if I sell it"* (Male, 24, eastern Finland). Though second answer is one of its kinds in this question, it was not the only time it was brought out. One respondent had added to the end of the questionnaire: *"I do not think that I even have heard about a possibility to recycle mobile phones. Now, that it would have been a question about precisely mobile phone recycling"* (Male, 24, wF). Therefore, besides keeping mobile phones at home just in case, people had not recycled their phones since they do not know that it is possible or they do not know where the phones can be recycled.

Table 3. Reasons for not recycling mobile phones

		Responses		Percent of Respondents b)
		N	Percent	
Why have you not recycled your phone?[a]	Sparephone	31	48,4%	63,3%
	I don't know where to take it	16	25,0%	32,7%
	I have not got around to recycling yet	7	10,9%	14,3%
	Other	10	15,6%	20,4%
Total		64	100,0%	130,6%

a. Dichotomy group tabulated at value 1. b. Multiple response question N=49

The study of Moisander in Finland affirms that perceived behavioural control (PBC) is an important predictor of intentions to act environmental-friendly. She remarks, however, that PBC is "mainly motivational and does not reflect consumers' actual behavioural control". (Moisander, 1996: 104, 115.) This is consistent with the theoretical framework of this study. Though PBC was not directly examined with a question, the possibility to answer 'recycling is hard' as a reason not to recycle mobile phones can reflect PBC. Nobody chose it. Therefore, it seems that, if people knew that mobile phone recycling is possible, they did not consider it to be inconvenient.

The justifications for keeping phones at home are more wide-ranging. Nonetheless, here spare phones also play an important role (see Figure 9), as well as they did in the Nokia internal survey. This was also the most important reason for people, who had recycled their phone(s), to have some old phone at home (see Appendix 4: Tables). Two almost as equal reasons were that the phones have been left lying about at home (cf. 4% in the internal survey) and that they are left home for children to play (cf. 1% ibid.). In contrary to Heikkinen et al (2004: 114) or the internal study, it was revealed no emotion related reasons, if 'good looks' is not defined as such, which is one of the 'others'. One of the 'other' responses support the spare phone idea, a respondent answered keeping phones at home in case of the parts, meaning maybe the batteries, or the phones are needed. Again supporting the assumption that the respondents are motivated to recycle mobile phones, one respondent replied: *"I keep them at home and will do so until I hear of a way to dispose of them in an environmentally way"* (Male, 38, wF).

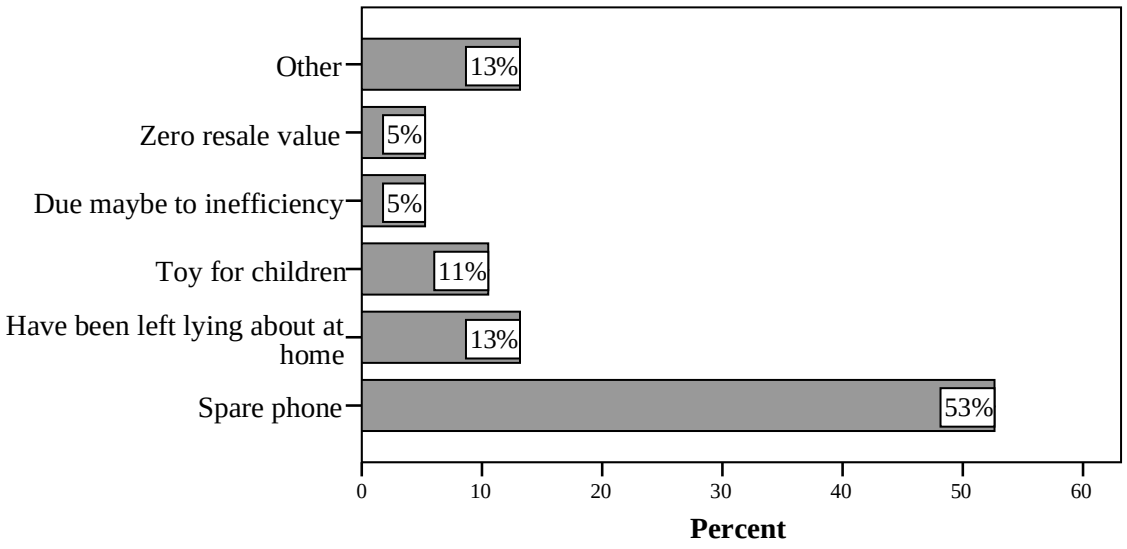

Figure 9. Reasons for keeping old phones at home (N=38)

Most of the six people, who have responded to recycle their phones, had taken them to stores. One respondent had post a phone using the possibility offered by Nokia and the WWF. However, one had picked recycling as a statement of what she will do when her first phone will be replaced. Therefore, only five people had really recycled their phone. From now on, only five recyclers are considered valid. All of them considered that mobile phone recycling was easy.

4.2. Importance of Recycling

The attitudes of the respondents were established by asking whether it is appropriate to dispose of a mobile phone with mixed waste and whether mobile phone recycling is important. As it was illustrated earlier, consistent with the thoughts about disposing of the phone with mixed waste, merely two respondents had done it. Moisander (1996) confirms this attitude-behaviour relationship; her study revealed that usually pro-environmental attitudes motivate pro-environmental behaviour. She also mentions that people regarding themselves pro-environmental try to behave accordingly. However, she emphasizes that behaviour being a result of many factors the attitude-behaviour relationship may not always be found. (Moisander, 1996: 8, 101.) Though this attitude-behaviour relationship is challenged, there are also other studies witnessing it (see e.g. Heiskanen and Timonen, 1996: 29).

When asked about the importance of mobile phone recycling, only five replied that it is not important. All of them were people not having recycled their mobile phone(s) (see Appendix 4: Tables). One of the reasons for not considering it to be important was that a respondent preferred selling the used phones, which was supported among the Nokia employees: about four fifths preferred selling or giving old phones to someone to recycling them. Others gave no explanation. 42 respondents considered that recycling mobile phones is important. This response synthesizes well most of the reasons why it is important: *"Yes, it possesses valuable metals and nature is preserved"* (Male, 26, eF) (see Appendix 3: Code Families, in Finnish). But mobile phone recycling was also considered important because recycling in general is important: *"Yes, because recycling is also otherwise important"* (Male, 19, wF). Some answered that mobile phones are subjects that people buy easily and their life is short, so, there is plenty to dispose of: *"People have quite many mobile phones and they are utility articles. They should be recycled with ease"* (Male, 20, wF). Furthermore, six people pointed out the reuse aspect (see Appendix 2: Code Frequencies, in Finnish) such as this respondent: *"I consider important, because they can be used as raw-materials for future devices"* (male, 22, eF), and nine argued mobile phones being hazardous waste (codes hazardous waste and inappropriate substances combined).

4.3. Knowledge and Campaign

Pieters (1991) advocates “intensive” informing: firstly, to motivate consumers to start recycling and to continue doing it; and secondly, to enable recycling. Motivating with information means that people become aware of the costs and benefits related to the performance; and enabling means giving the information needed to recycle properly and to strengthening new habits. As people tend to expect higher costs than they actually are, people should be better informed about the costs and benefits, e.g., when a new decree, like the WEEE decree, comes into force. (Pieters, 1991: 71.)

Having been informed about the WEEE directive or the Government Decree, people would be also aware of the zero euro recycling fee; hence, they would know the low costs relating to mobile phone recycling. Most of the people, mobile phone recyclers and non-recyclers, have not heard about the Government Decree of WEEE; roughly one third had heard about the Government Decree of WEEE and a bit more have seen the separate collection symbol (see Appendix 4: Tables). Most of the people having seen the symbol were non-recyclers. However, almost everyone, who responded to the question, answered properly that subjects possessing it must not dispose of with mixed waste. As less than half had heard about the decree and seen the symbol, it could have been interesting to ask whether the respondents know a WEEE takeback point. If the knowledge level had been the same, the figures would have been similar with the results of Heikkinen et al. (2004: 50). The study in question found that 49% in Oulu and forty percent in Helsinki knew where a WEEE collection point is situated. This is much less than Nokia internal survey demonstrated (80%), but it is expected since, as established, there were also quite many people who were unaware of mobile phone recycling as such. Moreover, it could be supposed that Nokia employees are better informed of mobile phone recycling than an average citizen, and it should be noted that Nokia has its own company internal recycling points for employees.

When asked about recycling fee, almost all of the respondents replied that recycling fee must not be paid when recycling a mobile phone (see Appendix 4: Tables); there is no remarkable difference between recyclers and non-recyclers. One respondent having answered ‘yes’ (fee must be paid) continued that it <u>should</u> be paid, however, she gave no reason for it. Though generally the better an individual is informed about recycling the

more likely s/he recycles (Schultz et al., 1995: 107), there are no remarkable differences between the respondents having recycled a phone and those who have not in knowledge.

To inform people, the recycling campaign was organized by Nokia and the WWF in co-operation with Finnish Post and recycling company Stena Technoworld, which was first of its kind in Finland (Tanskanen and Butler, 2007)[4]. During those three campaign months people could return their old phones and batteries via mail free of charge. Some of the postage paid envelopes were distributed by mail directly to households and some were available from some magazines, retail shops and post offices. Each returned mobile phone or accessory earned two euros from Nokia to the WWF climate campaign. (Nokia. 7.3.2007.) The campaign was not much advertised, but it got a lot of media interest. Therefore, it was a bit surprising that only ten respondents, two of them mobile phone recyclers, had heard about the recycling campaign (see Appendix 4: Tables). However, those ten respondents form almost one fifth of all the respondents; moreover, it was not only the people from campaign cities having heard about the campaign, but also some respondents in Lappeenranta knew about it.

The opinions were largely positive. Some were quite neutral: *"Yes, I have heard, I have no opinion, generally speaking supportable"* (Male, 64, wF) and *"I remember distantly having heard about it, it is probably a good thing"* (Female, 17, wF). Some were very happy about the campaign: *"Very good idea, big companies could afford more, succeeded beyond expectations, I support"* (Female, 38, wF) and *"Yes, it is a good thing that Nokia is on environment's side"* (Female, 31, wF). One of the respondents who had not heard about the campaign wrote*: "No, but it should be promoted more aggressively so that more people knew about it"* (Male, 38, wF).

4.4. Deposit System as a Motivator

Would a positive consequence, receiving money, motivate people to recycle? The respondents were asked to imagine a deposit system working similarly as the deposit system of returnable bottles in Finland, i.e., a sum of money is paid when buying a

[4] Similar campaign was organized in the end of the study by Saunalahti for its customers. This campaign was also arranged in co-operation with the WWF and Stena Technoworld. The campaign ended 31.7.2007. (http://www.wwf.fi/tue_toimi/tue_yrityksen_avulla/saunalahden_avulla_itameren.html visited 6.6.2007)

returnable bottle. The money is repaid when bottles are returned. The respondents answered as follows: two of them thought that zero euros are enough. Moreover, one who could not give an exact sum of money wrote that *"mere knowledge about a possibility to recycle is enough"* (Male, 41, wF). Another respondent thought quite similarly, she wrote that *"anything goes if I don't need it"* (Female, 22, eF). The minimum sum being as low as zero, the maximum is 200 euros. Although some considered 50 euros and 100 euros as motivating sums of money, the mean remains in 21.58 euros and mode in 10 euros, which seem more reasonable as phone prices can be sometimes quite low. The big deposit could be an impediment to buy a new phone as it would be more expensive, though it would be also a good motivator to recycle.

If comparing the mobile phone recyclers and the non-recyclers of the study, the recyclers considered that a deposit of one to twenty euros would motivate the most; among the non-recyclers the range was from zero to that maximum 200 euros, but most of them preferred ten euros. Therefore, with this sample size, as only four recyclers had responded to the question, it is impossible to separate these groups when it comes to the deposit.

5. Results and Discussion – Recycling in General

5.1. Subjective Norm

People have a relationship to the nature as an individual, but also as a member of different groups. These groups, such as workmates, can have an effect on an individual's knowledge about the environment and also how the knowledge is interpreted. Furthermore, preferences can be contributed by groups. (Heiskanen and Timonen, 1996: 23.)This effect coming from surrounding people is called 'the social norms' or the subjective norm as it is in the TPB, which according to Moisander (1996) can be important motivator of pro-environmental behaviour in two ways. Firstly, there is the fear of sanctions: if one does not act in compliance with the norm s/he can be punished. Secondly, the personal norms can be changed when s/he internalizes the social norms. Moisander has compared the social norms to financial incentives, which can influence behaviour momentarily: as soon as the incentives change also people's behaviour changes. By contrast, the social norms may have more permanent effect on behaviour, though this normative pressure may need to be sanctioned to be influential enough. To conclude, Moisander's study confirmed the variable's significance; she reveals that the normative pressure from friends and relatives influences an individual's intentions to behave in a certain manner. (Moisander, 1996: 55-56, 110.)

The responses to the subjective norm questions are as follows: almost all replied that the people close to them recycle; only two answered the contrary (see Appendix 4: Tables). Both of them are non-recyclers as the other is the one who picked recycling mobile phones as an airing. When asked about whether the respondents are encouraged by someone, most of the respondents answered getting no support (see Appendix 4: Tables); there were no remarkable differences between mobile phone recyclers and non-recyclers. One of the respondents replied: *"not anymore, sometime when I was younger"* (Female, 19, eF). From those who responded being supported most were encouraged by one or many family members, but one also mentioned herself being the supporter (Female, 64, wF). A thirty-year-old woman (wF) considered not needing support as she "already recycles".

Things can be also the other way around; some people do not understand the importance of recycling. Some respondents, one of them a mobile phone recycler, were questioned about

their recycling activity, but luckily most of them were not (see Appendix 4: Tables). A 62-year-old woman (eF) answered that her children "sneer" at her recycling behaviour. A 33-year-old man (wF) responded his parents not understanding "since it wasn't done before". Some think that recycling is troublesome, one respondent answered that sometimes someone can wonder how she is able to recycle. Furthermore, the bother can be annoying: *"Yes, taking garbage to different dustbins and at many different times irritates my common-law husband"* (Female, 21, wF).

5.2. Recycling Behaviour and Self-identity

People have personal routines which create continuity to action. Though societies set boundaries, it is the individuals who decide in the end how they act. According to Lähde (2001), to change these routines, people need to be accustomed, for instance, to recycling. He points out that besides enabling recycling and providing information, social learning is needed to get people familiar with the idea of recycling. As people start recycling, they internalize the idea and it becomes a routine. During the process, the way of thinking also changes. (Lähde, 2001a; Lähde, 2001b.) This is supported by Heiskanen and Timonen (1996: 29); they discovered that habits are important factors influencing the behaviour. Thus, if pro-environmental behaviour is a part of someone's everyday life, mobile phone recycling could also be more expected from that person than from an average person.

To establish whether the respondents have environmental-friendly routines, they were asked to describe their environmental-friendly behaviour. As a result twelve types of recyclers and some other pro-environmental types of people were discovered (see Appendix 3: Code Families, in Finnish). However, some being lazy answering or too modest, the outcome does not quite tell the truth. When asked to circle materials that a respondent recycles, everyone recycled something. 95% recycled paper and 88% recycled glass (see Appendix 4: Tables). The third most recycled material was cardboard with 85% of the respondents. A study made in Helsinki, Finland, in 2000 accords with these findings; then paper was also the most recycled material with 93.5% of the respondents. Though hazardous waste was the second most recycled material/object, glass was recycled as much as in this study. However, as the recycling system has become better after the study was done, in this study cardboard was more recycled than in 2000. (Lankinen and Sairinen, 2000: 34-36.)

This sample of Finnish people consists only of recyclers, whereas the sample of Heikkinen et al. (2004: 53) had approximately six percent of non-recyclers. The minimum being two, a few listed even seven different materials (paper, glass etc.) that they recycle (see Appendix 4: Tables). Though most answered recycling four different types of waste, plenty of the respondents named five to six different materials. Material-wise there seems to be no difference between people who had recycled their phone(s) and those who had not: the recycling percentage differs from material to material being maybe due to the possibilities to recycle. However, all respondents who had recycled one or more mobile phones responded recycling at least four different material types (see Table 4). Half of them recycled six different materials. Could this indicate as revealed in the study of Saphores et al. (2006: 205) that the familiarity with recycling affects?

Table 4. The relation between number of materials recycled and mobile phone recycling

			I recycle them		
			No	Yes	Total
How many different materials a respondent recycles?	2	Count	1	0	1
			2,0%	,0%	1,8%
	3	Count	5	0	5
			10,0%	,0%	8,9%
	4	Count	17	2	19
			34,0%	33,3%	33,9%
	5	Count	12	1	13
			24,0%	16,7%	23,2%
	6	Count	12	3	15
			24,0%	50,0%	26,8%
	7	Count	3	0	3
			6,0%	,0%	5,4%
Total		Count	50	6	56
			100,0%	100,0%	100,0%

Apart from recycling, people answered using busses, saving electricity and water, and even favouring environmentally-friendly products: *"Yes, I try to change places and consume loading the environment as least as possible"* (Male, 26, eF). One mentioned teaching children to recycle. Couple answered not littering the nature. One could be regarded as affirmative to the environment: *"In principal and in theory level yes, practical activities are minor"* (Male, 41, wF). As an example of the modesty, one replied maybe not being enough environmentally-friendly, although he answered recycling paper, glass, metal and cardboard. As well as, one wrote not being environmental-friendly despite her recycling behaviour.

Moisander has found out that "the more consumers perceive themselves as ecologically minded, the more they engage in ecologically responsible behaviours on average" (Moisander, 1996: 8). The importance of ecologically responsible behaviour was studied and about half of the respondents felt bad if they could not recycle (see Figure 10), there were no remarkable differences between mobile phone recyclers and non-recyclers. About one fourth of all the respondents considered it as ok. Some of those who considered it bad where, however, little more approving: *"It doesn't feel nice but I won't spend sleepless nights because of it"* (Female, 31, eF). Some where more passionate about it: *"It feels annoying when I can't recycle properly. Also stupid."* (Male, 20, wF); and *"Oh dear, we'll drown under crap"* (Female, 38, wF). A forty-year-old woman (wF) simply considered it as "unnecessary waste load". Five respondents were more active than others. One listed ways to decrease the amount of wastes produced: *"Composter! Yes and own kitchen garden -> no packing mat., might the amount of waste diminish?"* (Female, 27, wF). Others thought that it would be easy to take recyclable materials with them to city and recycle them there.

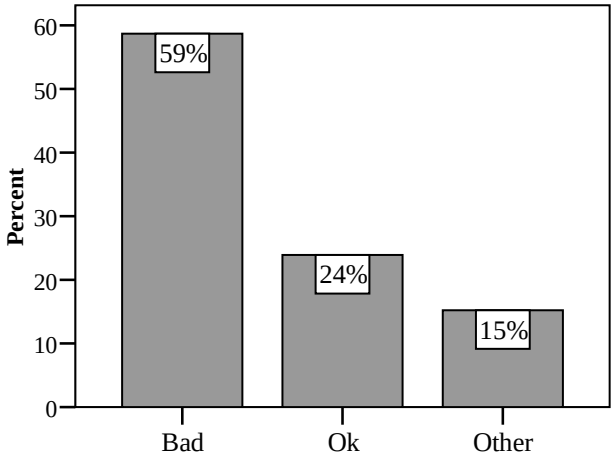

Figure 10. Examining the self-identity: feelings about not recycling (N=45)

Couple of the people responding it is ok not to recycle put also forward taking the recyclables with them. The other considered it possible, but the other thought that she would probably not take them to recycling point. Two respondents were a little reserved: *"It doesn't bother much provided that hazardous waste can be taken to appropriate takeback points"* (Male, 41, wF) and *"I probably wouldn't pay much attention to an individual event, if this was the way of action always – it should be done something about it"* (Male, 20, wF). One respondent could be classified as environmental-conscious: *"It is*

the way of the place and it can be the least loading" (Male, 45, wF). All in all, the respondents were surprisingly pro-environmental, at least when it comes to recycling.

5.3. What Prevents or Motivates?

Though people would be willing to recycle, the actual control, meaning the possibilities, may prevent a person from recycling. It must be remembered, a person is not free from the society around him. In contrast as Nurmio (2001) states, the society creates conditions by which an individual can act. For instance, an institution, such as waste management, constrains how an individual can handle the wastes. Besides practical prevention, the principals (consisting of laws, knowledge etc.) behind the waste management influence people. In Nurmio's study in Finland, people could easily dispose of mixed waste as it was collected house-specifically. To recycle meant more effort and composting even more as the area had mainly detached houses. Dependent of how the waste management institution had affected, a citizen were more or less ready to recycle. (Nurmio, 2001.) It seems that the ease of recycling stays as one variable affecting recycling behaviour irrespective of time; studies made in the eighties and in the nineties reveal that materials were more frequently recycled when the recycling system was well organized (e.g. Aalto, 1986: 71; Heiskanen and Timonen, 1996: 28; Lankinen, 1995: 32).

Nurmio's results supported the idea that the way how the waste management is organized influences significantly to the respondents' waste handling. However, it is not the only interpreter. As presented, the "ideologies" related to the institution can make people act more environmental-friendly, but also habits and historical practices. (Nurmio, 2001.)

In this respect, the respondents where asked whether they would like to recycle something they did not already recycle, and which were the barriers now. Half of the respondents would like to recycle something more: mainly plastic, metal and organic waste, but also cardboard, old appliances and hazardous waste. One also mentioned nappies. The main obstacle was the lack of recycling system (plastic) or the lack of recycling point in housing co-operatives (mainly organic waste). If included 'few collection points' and 'no collection point nearby', the lack of possibility to recycle was the most important reason (see Figure 11). This corresponds to the study of Heikkinen et al. (2004: 66); the absence of possibilities to recycle or inconvenience was the second important barrier to behave

environmental-friendly. Furthermore, Lankinen and Sairinen (2000: 48) note that besides attitudes, also the recycling possibilities and how conveniently the recycling points are situated affect people's recycling activity. Only one respondent, who had recycled a mobile phone, answered to the question. Whether it is due to the fact that they do not see anything preventing their recycling behaviour or to something else it is impossible to say. However, it is certain that the mobile phone recyclers were also the ones recycling more in general as discovered in chapter 5.2.

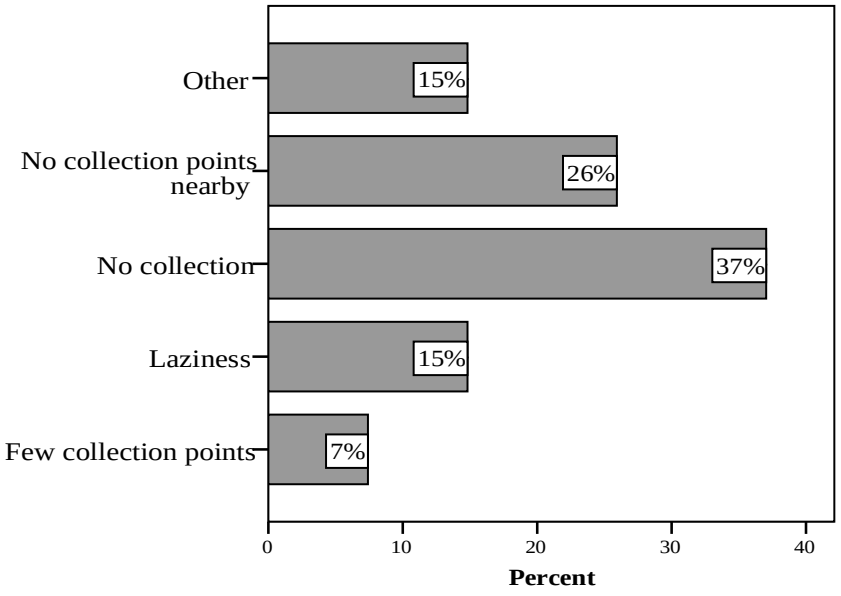

Figure 11. Obstacles to recycling (N=27)

If considered the possibilities to recycle as one variable, laziness was the second biggest hindrance. Apart from these, couple were uncertain about where to take glass and metal, but also electric lamps. The uncertainty about electric lamps may due to insufficient information, but as the other respondent admitted, she is lazy to recycle metals, glass and milk cartons, and I assume the same holds true to finding information about it. Furthermore, small kitchen was seen as preventing from sorting all wastes, as well as full containers.

When examining possible motives, the respondents were allowed to choose as many motivators as they wanted; the motivator 'divesting of junk' was the most popular (see Table 5). About two thirds chose 'I feel good being pro-environmental'. Roughly two fifths chose 'recycling is easy' as a motivator. This order remains the same when compared to answers of what is the most important motivator. The other reasons where: *"The world*

can be saved for kids." (Male, 33, wF); *"Mother Gaia won't drown under crap"* (Female, 27, wF). One respondent considered recycling easy: *"It causes no extra trouble but it is good for the nature."* (Female, 17, wF).

Table 5. Motives to recycle

		Responses		Percent of Respondents b)
		N	Percent	
What motivates you to recycle?[a]	I divest of junk	44	36,7%	75,9%
	I feel good being pro-environmental	38	31,7%	65,5%
	Recycling is easy	25	20,8%	43,1%
	My waste bill diminishes	10	8,3%	17,2%
	Other	3	2,5%	5,2%
Total		120	100,0%	206,9%

a. Dichotomy group tabulated at value 1. b. Multiple response question N=58

For the non-recyclers the best motive was to divest of junk whereas for recyclers it was that they feel good being pro-environmental (see Appendix 4: Tables). However, that motive was also picked by most of the non-recyclers, it being the second most important motivator.

5.4. Enough Information?

It has been found that environmental knowledge has certain effect on environmental-friendly behaviour; when the information is more concrete and it helps a consumer, for instance handle wastes, it is more effective. However, Heiskanen and Timonen would prefer facilitating recycling to informing about it, if only one device was to be used. (Heiskanen and Timonen, 1996: 29, 50.) Whether good information makes a recycler or a recycler becomes better informed about it; it seems that recyclers are more aware of recycling (Vining and Ebreo, 1990: 70).

The respondents were asked about their level of recycling knowledge (see Appendix 4: Tables); it seems that people receive enough information, at least in their opinion. About four fifths answered receiving enough information; only four people replied not receiving. Another respondent being surprised with mobile phone recycling wrote that *"that mobile phone was a surprise, apparently I don't"* (Female, 27, wF).

The best source of information is the internet (see Table 6). The mass media was second. Some answered receiving information from dustbins, or rather from takeback containers. This is good for recycling in general, but does not help recycling mobile phones as they are more difficult to reach. The 'other' variable consists of such sources as word-of-mouth, Garbage Companies and news, but also of own activity: *"Well you get information if you search for it everywhere"* (Male, 24, wF).

Table 6. Best sources of information

		Responses		Percent of Respondents b)
		N	Percent	
What is the best source of information? [a]	Mass media	17	28,3%	37,8%
	Housing co-operative	2	3,3%	4,4%
	Brochures or newsletters	3	5,0%	6,7%
	Internet	21	35,0%	46,7%
	Home	2	3,3%	4,4%
	Instructions from dutsbin	6	10,0%	13,3%
	Other	9	15,0%	20,0%
Total		60	100,0%	133,3%

a. Dichotomy group tabulated at value 1. b. Multiple response question N=45

Among the respondents, who had recycled their phone(s), half replied that the mass media is the best source of information and the next best is the internet (see Appendix 4: Tables). Almost accordingly, the non-recyclers preferred the internet, the mass media being the second.

6. Middle-aged men and western Finland rules - some vague relationships

6.1. Demographic factors

Due to the nature of these factors, they are presented in a more quantitative manner. The demographic factors are examined because of the small sample mainly in comparison with mobile phone recycling behaviour. However, some differences are demonstrated also in other variables. By reason of the high quantity and the low importance, only some cross-tabulations are exhibited, mainly they are only summarized.

Moisander demands more sensitive approach when examining how the **gender** influences pro-environmental behaviour, as it is suggested that women are more concerned about the environment and more willing to act ecologically responsibly than men (Moisander, 2001: 49-51, 225-243). However, in this study the possible gender effect was examined more traditionally with cross-tabulation. In this sample of Finnish people, gender plays a little role; most (62%) of the respondents who had no old mobile phone at home were women. However, when mobile phone recycling is in question, men had recycled four times more than women, but it must be remembered that there were only five people who had recycled (see Table 7). In other words, despite the gender, most of the respondents had not recycled. Moreover, as both genders considered mobile phone recycling almost equally important, these findings are opposite to those of Saphores et al. (2006: 205) who demonstrated women as more willing to recycle WEEE.

Table 7. Gender in relation to mobile phone recycling behaviour[5]

			I recycle them		
			No	Yes	Total
Gender	Man	Count	23	4	27
			46,0%	66,7%	48,2%
	Woman	Count	27	2	29
			54,0%	33,3%	51,8%
Total		Count	50	6	56
			100,0%	100,0%	100,0%

[5] The other woman is the one who is not really a recycler.

Better corresponding to the findings of Saphores et al. (2006: 205), if examining general recycling behaviour, women recycled more materials than men. Most of the women (36%) recycled six different materials (paper, glass etc.) whereas most of the men (41%) recycled four. Although everyone recycled in this study, it maybe can be stated that women are more active in recycling, as it was shown also by Heikkinen et al. (2004: 135) and Aalto (1986: 72). This contradiction of men recycling more phones and women other materials can result from the small sample size or from that the men in this study were better informed: men were the ones more aware of the decree. As well as, they were slightly better informed about the recycling fee and the campaign.

Age: Most of the respondents having no old phones at home were over fifty years old, nonetheless, it must be noted that in this age group there were some people who's phone were their first. The majority of under fifty-year-olds possessed one or two old phones. In over fifty-year-olds, this was the second biggest group. All in all, under fifty-year-olds kept more used phones at home than the oldest age group. Three respondents having recycled their phones belonged to the age group between 35 and 50, which accords with the results of Saphores et al. (2006). Two of the recyclers are under 35 years (see Table 8). The middle-aged were also the best informed about the decree and the campaign.

Table 8. Age group in relation to mobile phone recycling behaviour[6]

			I recycle them		
			No	Yes	Total
Agegroups	Under 35	Count	24	2	26
			48,0%	33,3%	46,4%
	35-50	Count	11	3	14
			22,0%	50,0%	25,0%
	Over 50	Count	15	1	16
			30,0%	16,7%	28,6%
Total		Count	50	6	56
			100,0%	100,0%	100,0%

As it was brought out by Heikkinen et al. (2004: 55) as well as Lankinen and Sairinen (2000: 36), recycling activity in general increases with age. In this study, the respondents under fifty recycled mostly (35-36%) four different materials, while the 'seniors' mostly (39%) recycled six. Though there were no remarkable differences between genders in

[6] The recycler over fifty is to be excluded.

attitudes, it was found that there are differences between age groups. The respondents who were under fifty years old considered all except for one that mobile phone recycling is important, whereas even one third of the older ones thought the contrary.

Education: Most of the respondents having no old phones at home had vocational school degree; the next biggest group was the respondents with university or other institution of higher education degree. Roughly, one fifth had no degrees after comprehensive school. From those who had one or more used phones at home, the smallest group consisted of the ones having the lowest education. Fifty percent of the respondents having recycled their old phone(s), had university or other higher education degree. However, it seems that education does not signify much when the mobile phone recycling is concerned: the remaining two recyclers had the lowest educated (no degree after comprehensive school) and the second lowest education (grammar school/upper secondary school). This is opposite to the study conducted in California (Saphores et al., 2006).

Life situation: Being consistent with the age distribution, it is the pensioners being the biggest group who have no used phones at home. As expected then, it is chiefly the students and people working whole time who have the most used phones at home. The recyclers were well distributed, most of them, i.e. two people, answered working whole time. The others were: a student, an entrepreneur and the remaining one was in a job alternation leave.

Having no clear pattern, the relations between **income** and keeping old phones at home are not presented. Contrast to the finding of Schultz et al. (1995: 108), the higher income does no necessarily predict pro-environmental behaviour. Three of the respondents having recycled an old phone earned less than 4,000 euros.

Family: Three of the respondents who had recycled their phone either had no children or they were already adults; two lived in one member household. If considered vice versa, two recyclers had one or two children and three lived in a household of two or more members, thus, there is no clear relation between family size and recycling behaviour.

6.2. Cultural differences?

People do not always ponder beforehand how to act; a society may have institutional cultural traditions which affect one's behaviour. These traditions as well as individuals' routines help people to act without too much thinking. Lähde emphasizes that the power of traditions should not be underestimated as they are bounded to cultures. (Lähde, 2001a.) Furthermore, as already stated Moisander considers that "green consumerism is a social and cultural phenomenon" (Moisander, 2001: 68).

In this respect the possible cultural differences were examined: most of the households (62%) having no used phones at home are situated in the capital city area. The households having one or more old phones are quite equally distributed. However, three of the respondents having recycled their phone(s) are situated in western Finland; second place is divided by the capital city area and eastern Finland. Hence, if considered Finland divided into two cultural areas, it is the western part where most of mobile phone recyclers were situated.

There are no significant differences between areas when thinking about disposing of mobile phones with mixed waste; the one considering it to be allowed lives in the capital city area. Most (60%) of the people not considering mobile phone recycling important were situated in western Finland, but most of the people considering it important lived also there. Otherwise there are no regional or cultural differences. Neither there are notable regional differences in being informed about the government degree of WEEE. By contrast, the separate collection symbol had been mostly seen in the capital city area (60%). If compared only using the cultural division, half imagining that there is a mobile phone recycling fee were from eastern Finland and the other half from the western part. When reviewing the Nokia's campaign, four fifths of the respondents having heard about the recycling campaign lived in western or eastern Finland; the remaining two people lived in the capital city area. Therefore, though the western cultural part being bigger in numbers, the eastern part is a bit more aware of the campaign in percentages.

What comes to general recycling activity, as said before, every respondent recycled. Some little differences are shown between areas when the materials that are recycled were examined. For example, metals are best recycled in western Finland, which perhaps due to

better recycling possibilities than in the other areas. But then, in western Finland it is the organic waste that is the least recycled. Knowing the waste handling systems in Turku and Helsinki, I assume that this difference does not occur from cultural differences, but from how recycling is organized. This is consistent with the next finding: cardboard and glass, the materials of which recycling is usually worse or more inconveniently organised, are the materials wanted to be more recycled in eastern Finland; whereas in the capital city area people would like to recycle more hazardous waste and metal. Furthermore, the respondents wanted to recycle more organic waste, mainly in western Finland, but also in the capital city area. In addition, my assumption is supported by the fact that all three respondents from western Finland wanting to recycle more organic waste named the lack of collection as the main obstacle. Likewise answered the five respondents situated in the capital city area and eastern Finland, who wanted to recycle more metal.

6.3. Limitations of the study

In the beginning, the options of how to conduct this study were considered. As this is the master's thesis, it was decided best not to do a big survey, which could have given more possibilities to examine relationships between different factors. The pure way of doing qualitative research was also contemplated, but as the aim of the study did not require that deep of an analysis the idea of group interviews was left aside.

As usual, the errors made when people responded to the questionnaires as well as when the questionnaires were typed up to for qualitative analysis, in which Atlas.ti was used, and transferred to SPSS for quantitative analysis can have certain effect. However, using two different programmes helped noticing these typing errors, and therefore, I assume their effect being minimal. On the contrary, the errors made when questionnaires were filled can have a bigger impact. As revealed in the field, the income was sometimes hard to know, as it was the case especially when the respondent was a young person living with her/his parents. Furthermore, the respondents studying in some university or other institution of higher education filled occasionally the questionnaire as having already a higher degree. The responses were not corrected, as it is not always possible to be sure whether it indeed is so.

One limiting factor is also that the respondents themselves reported of their recycling behaviour. As Davies et al. (2002: 44) have remarked, the self-reporting of recycling behaviour tends to be exaggerated. But since recycling paper is quite convenient, which almost everyone reported to do, and some described their pro-environmental behaviour as almost non-existing, I assume that the questionnaires offer quite reliable information.

As this is customized master's thesis, the relationship between the researcher and the subscriber is to be considered. It has to be admitted that my opinion of Nokia's environmental work has become more positive. However, as the aim was not to study how well of all Nokia handle the recycling, but how people in general recycle and know about it, this connection does not have much of an impact. In the questionnaire there was only one question examining precisely Nokia: the question about the recycling campaign. I assume that only there my relationship could be seen as I was a bit surprised that the campaign was not more known since it gained a lot of media interest. Though Nokia was mentioned in the covering letter (see Appendix 1: Questionnaire) the respondents did not seem to be affected by that, they were more interested or surprised by the content of the questionnaire and enthusiastic about the fact that it was for the master's thesis.

7. Conclusions - Portrait of a (non-)recycler

The main reason for keeping disused mobile phones at home and not recycling is naturally that people want to have a phone in case the one in use will be, e.g., broken or lost. This should be respected and it is also difficult to change. However, as one respondent put it: *"One spare phone would do"* (Female, 27, wF). These extra spare phones could be recycled. The next biggest reason for not recycling can be more easily excluded by giving more information about the possibility to recycle mobile phones. Less easy it is to wake up the ones who just have not got around to recycling yet, but some aggressive information campaign could also have the wanted effect on them. Thus, a non-recycler is a person keeping a phone or more for a possible need. S/he could recycle the extras, if s/he was aware of the possibility.

Unlike in other pro-environmental behaviour, such as buying organic food, it seems that people would be motivated to recycle mobile phones. At least it is considered important, and only a few had disposed of an old mobile phone or thought it to be acceptable. Thus, if they are well informed and recycling is done fairly easy, it could be assumed that they would actually recycle. The success of the recycling campaign supports this assumption: during the three campaign months people recycled about 20,000 disused Nokia mobile phones or accessories (Nokia. 7.3.2007). To conclude, it is not the motivation hindering a non-recycler from recycling mobile phones.

Information seems to play a role in this; though it is not necessary for mobile phone recycling but it would also help people to be more aware of the recycling possibility of the WEEE, the government decree should be made more known. In this study, it was quite equally unknown among the recyclers and the non-recyclers. The separate collection symbol was also fairly unknown; however, its meaning was quite well understood. Despite being quite unaware of previously presented facts, the most of the respondents knew, or guessed correctly, that there is not a recycling fee to be paid when recycling a mobile phone. Therefore, this cannot be seen as a factor preventing recycling. The best sources of information were the mass media (the recyclers) and the more an individual's own effort needing internet (the non-recyclers and altogether). In sum, the (non-)recyclers are not well aware of the facts related to the WEEE directive, but it is not a big problem since the most

important facts, the symbol and recycling fee, are better understood and known. Furthermore, it is encouraging that people are willing to actively search for information.

As it was found in this study, the takeback needs to be organized in a way that is easy to consumers. The respondents recycled materials and objects which are possible to recycle and whose collection points are relatively near or easy to reach. Furthermore, if collection points are, e.g., in shopping centres, people do not have to go somewhere purposely to recycle their old phones. Thus, the environmental impact of recycling also diminishes (Tanskanen and Butler, 2007). However, it must be remarked that none of the respondents considered mobile phone recycling to be inconvenient. It is not certain though that it is not only due to, for instance, the respondents being unaware of recycling possibility. If considered recycling as a whole, the non-recyclers were less active; they were also the ones bringing out obstacles to recycling such as: *"The effort hinders a bit"* (Female, 22, eF). This can be only a feature of this small sample, but, as stated before, once becoming a recycler a person usually widens his/her recycling behaviour to include also other materials besides, e.g., paper if possible. Though there were no remarkable differences in self-identity between the non-recyclers and the recyclers, it could be stated that when a person starts recycling, it becomes a part of the self-identity after a while. All in all, the ease removes barriers from recycling, and the barriers were listed only by the non-recyclers.

If examining the subjective norm, the two respondents whose people close to them did not recycle had not recycled their phone(s). The non-recyclers were less questioned about recycling the mobile phone recyclers, but also less supported; however, no remarkable differences existed. Therefore, it is possible that the non-recyclers do not have as many good examples as the recyclers do, but it cannot be stated that it would affect their recycling activity. The most important motive for recycling for the respondents not having recycled their phones was getting rid of the unneeded things. The most important motive for the recyclers feeling good about being pro-environmental was, however, in the second place for the first group. As this is the place where people usually exaggerate, I would not draw any remarkable conclusions from the difference.

The recyclers were mostly men, only one woman had recycled. As the women were also better represented in the study, it could be summarized that women were clearly less active in recycling mobile phones. As the age is concerned, all of the recyclers were under fifty

years old: three were between 35 and 50 and two were under 35. It should be remembered, however, that people under fifty also replaced mobile phones more frequently. As already stated, the middle-aged were also best informed. As for the cultural or maybe better put the areal distribution, the most active mobile phone recyclers were found in western Finland. Only one had recycled in the capital city area as well as in eastern Finland. Though otherwise no remarkable differences were found, the recycling campaign was the least known, surprisingly, in the capital city area. The results indicate that the distinctions between respondents are not due to cultural differences. Simplified, the recyclers were under fifty-year-old men living in western Finland.

The idea of the mobile phone deposit system is maybe unrealistic, but should be, nonetheless, given a thought. The sum of ten euros, which was the most popular among all the respondents and among the non-recyclers, is not too big to be paid when one is buying a new phone. It could be also motivating enough not to forget the disused phones to a drawer. However, other practical matters may hinder the realization of such a system.

In sum, by giving more information, perhaps via the mentioned internet or the mass media, about recycling mobile phones or WEEE in general, the recycling percentage could be amounted. If people were aware of the fact that they could easily recycle their phones by taking them, e.g., to the Nokia retail shop in the centre of Helsinki, in Finland, also the extra spare phones could be recycled. As for the takeback points further of the city centres like the Sortti-station in Kivikko, in Finland, they can be seen more inconvenient when mobile phone recycling is concerned, if other appliances are not to be recycled at that moment. As the non mobile phone recyclers were mostly women and over fifty, who were generally more active than others in recycling, an idea could be to advertise in some magazine(s) allocated to them. Furthermore, it seems that the capital city area could need some specific attention as the mobile phone recycling activity was in this sample quite poor despite the recycling campaign and the large quantity of people living there.

7.1. Further studies

During the study, I started to think about how the questionnaire could have been revised to gather more information about how people would be best informed. Though the recycling campaign was not much advertised, in my opinion it gained quite a lot of space in the

media. Besides the campaign, in last couple years there have been quite many pieces about WEEE in newspapers. Thus, I feel that the subject has been well on view. However, many people did not know where they could take disused phones, and some were surprised to hear that phones can be recycled. Therefore, a study examining ways to inform people, and which maybe would give more specific information about how different groups could be best informed, needs to be done. As Niva et al. have stated, consumers can be divided in different groups based on the environmental information they would need. The Finnish researchers found three groups which differed from each other in level of knowledge and motivation. (Niva et al., 1997: 36.)

This study could be done in the same way as Niva et al. when they researched the role of environmental information and its exploitability in consumer decision making. They interviewed 31 people who same time acquainted themselves with product information on packings (Niva et al., 1997: 34). Instead of product information, the respondents could assess different advertisements or campaign methods. Also a basic group interview might throw light on the subject.

Furthermore, as examined by Saphores et al. (2006), the adequacy of the collection point network should be reviewed in Finland. It is obvious that in rural areas it is impossible to have takeback points just around the corner, but what is the distance that people are willing to travel? Are the Finnish people living outside the cities as willing to tolerate some inconvenience to be able to recycle as they were in California? What is considered easy and inconvenient when mobile phone recycling is concerned?

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Appendixes

Appendix 1: Questionnaire

Helsingin yliopisto
Biotieteellinen tiedekunta
Bio- ja ympäristötieteiden laitos

Saate

Hyvä vastaaja,

teen pro gradu -tutkielmaa Helsingin yliopiston bio- ja ympäristötieteiden laitokselle matkapuhelimien kierrätyksestä. Opinnäytetyöhankkeeni tekoa tukee Nokia Oyj. Työni aihe keskittyy kierrätyskäyttäytymiseen, jota on matkapuhelimien yhteydessä tutkittu vähän, joten osallistumalla kyselyyn annat tärkeää tietoa. Tutkimuskaupunkeja ovat Helsinki, Turku ja Lappeenranta. Näissä kaupungeissa täytetyistä lomakkeista etsitään mahdollisia alueellisia eroja. Kyselyn täyttämiseen menee noin 5-10 minuuttia, minkä jälkeen keskustelen mielelläni aiheesta lisää ja vastaan tarkempiin kysymyksiin. Tutkimuksesta antaa lisätietoa myös professori Ilmo Massa (puh. 09 191 58838, 0919124573).

Antamiasi vastauksia käsitellään nimettöminä ja ehdottoman luottamuksellisesti.

Kiitos avustasi!

Johanna Pietikäinen (puh. 050 303 5615, johanna.pietikainen@helsinki.fi)

University of Helsinki
Faculty of Biosciences
Department of Biological and Environmental Sciences

Covering letter

Dear respondent,

I am working on a master’s thesis for the Department of Biological and Environmental Sciences in the University of Helsinki about mobile recycling. The work is supported by Nokia Corporation. The thesis concentrates on mobile phone recycling behaviour, which has been little studied, so by responding to the questionnaire you give valuable information. The research cities are Helsinki, Turku and Lappeenranta. The questionnaires filled in these cities are used for comparison of possible regional differences. It takes about 5-10 minutes to fill in the questionnaire after which I am happy to discuss about the matter and give more information. Professor Ilmo Massa (tel. 09 191 58838, 0919124573) is also willing to give more information about the study.

The answers are to be handled anonymously and in confidence.

Thank you for your help!

Johanna Pietikäinen (tel. 050 303 5615, johanna.pietikainen@helsinki.fi)

Kyselylomake (Questionnaire)

Ympyröi sopivin vastaus tai **kirjoita** se sille varattuun tilaan. (Circle the most appropriate answer or write it to the space designated for it.)

Matkapuhelinten kierrättäminen (Mobile phone recycling)

1. Onko kotonasi vanhoja, käytöstä poistettuja matkapuhelimia? Jos on, kuinka monta? (How many disused mobile phones do you have at home?) _____

2. a. Mitä teet vanhoilla, käytetyillä matkapuhelimillasi? Voit valita useamman. (What do you do with your old, used mobile phones? You can choose one or more.)

1. Säilytän kotona (vastaa kysymykseen b) (I keep at home – answer to the question b)
2. Annan esimerkiksi lapselleni/ystävälleni (I give, e.g., to my child/friend)
3. Myyn ne (I sell them)
4. Jätän liikkeeseen uutta ostaessani (I leave to store when buying a new one)
5. Vien asianmukaiseen kierrätykseen (vastaa kysymyksiin c ja d) (I recycle – answer to the questions c and d)
6. Laitan sekajäteastiaan (I put with mixed waste)
7. Muuta, mitä? (Other, what?)_____

b. Jos säilytät vanhoja matkapuhelimiasi kotona, kerro miksi. (If you keep old mobile phones at home, tell me why.)

_____

_____

c. Jos olet vienyt matkapuhelimen kierrätykseen, mihin olet sen vienyt ja mistä olet kuullut tästä mahdollisuudesta? (If you have recycled your mobile phone, where did you recycle it and where did you hear about the opportunity?)

_____

_____

d. Oliko kierrättäminen helppoa vai hankalaa? Miksi? (Was it easy or difficult to recycle your phone? Why?)

_____

_____

3. Jos et ole vienyt matkapuhelinta kierrätykseen, mistä se johtuu? (If you have not recycled your old mobile phone, why?)

1. Jätän sen varapuhelimeksi (I keep it as a spare phone)
2. En tiedä mihin se pitäisi viedä (I do not know where to take it)
3. Koen kierrätyksen hankalaksi (Recycling is troublesome)
4. En ole vielä saanut aikaiseksi (I have not got around yet)
5. Muuta, mikä? (Other, what?)_____

_____

4. a. Voiko vanhan matkapuhelimen mielestäsi laittaa sekajätteiden joukkoon? (Is it ok to put an old mobile phone with mixed municipal waste?)

1. Kyllä (Yes) 2. Ei (No)

b. Oletko koskaan laittanut matkapuhelinta sekajätteeseen? (Have you ever put a mobile phone with mixed municipal waste?)

1. Kyllä (Yes) 2. En (No)

Mitä tiedät ja ajattelet matkapuhelinten kierrätyksestä? (What do you know and think about mobile phone recycling?)

5. Pidätkö matkapuhelimien kierrättämistä tärkeänä? Jos pidät, niin miksi? (Is recycling of mobile phones important? If yes, why?)_____

_____

_____

6. Kuvittele, että matkapuhelimille olisi luotu samanlainen panttisysteemi kuin palautuspulloilla on. Mikä rahasumma kannustaisi sinua palauttamaan matkapuhelimen? (Imagine that a deposit system has been created similar to the one that returnable bottles have. What would be the sum of money that motivates you to recycle your mobile phone?)

_____

7. Oletko kuullut sähkö- ja elektroniikkaromun kierrätykseen liittyvästä uudesta asetuksesta? (Have you heard about the WEEE Government Decree?)

1. Kyllä (Yes) 2. En (No)

8. Oletko nähnyt oheisen symbolin matkapuhelimessasi? Mitä se merkitsee? (Have you seen this symbol in your mobile phone? Do you know what it means?)

_____

_____

9. Onko seuraava väite mielestäsi totta? Viedessäni matkapuhelimen kierrätettäväksi, siitä täytyy maksaa kierrätysmaksu. (Is it true that you have to pay a recycling fee when you recycle a mobile phone?)

1. Kyllä (Yes) 2. Ei (No)

10. Oletko kuullut Nokian ja Maailman luonnonsäätiön (WWF) matkapuhelimien kierrätyskampanjasta? Jos olet, mitä mieltä olet siitä? (Have you heard about the recycling campaign by Nokia and the WWF? What do think about it?)

_____

_____

Ympäristökäyttäytyminen (Pro-environmental behaviour)

11. Toimitko mielestäsi ympäristöystävällisesti? Kuvaile ympäristöystävällistä toimintaasi. (Do you act pro-environmentally? Describe that behaviour.)

_____

_____

12. a. Mitä erottelet sekajätteestä? Ympyröi kaikki erottelemasi jätteet. (What do you recycle? Circle all the materials you separate from the mixed waste.)

1. Paperia (Paper)
2. Lasia (Glass)
3. Metallia (Metal)
4. Pahvia ja kartonkia (maitotölkit yms.) (Cardboard)
5. Biojätteet (Organic waste)
6. Ehjät vaatteet, huonekalut tms. (Clothes, furniture etc.)
7. Muu, mikä? (Other, what?)_____

b. Mitä haluaisit kierrättää tehokkaammin? Mikä estää tällä hetkellä kierrättämisen? (What objects or materials would you like to recycle more efficiently? What prevents you from recycling now?)

_____

_____

13. Mikä kannustaa sinua kierrättämään? Voit valita useamman. Alleviivaa tärkein. (What motivates you to recycle?)

1. Pääsen eroon turhista tavaroista (I get rid of unnecessary items)
2. Hyvä mieli hyvästä ympäristöteosta (I feel good about pro-environmental deed)
3. Kierrätyksen helppous (Ease of recycling)
4. Jätelaskuni pienenee (Wastebill dimishes)
5. Muu, mikä? (Other, what?)_____

14. Miltä sinusta tuntuu, jos et jostain syystä pysty kierrättämään? Kuvittele, että vuokraat mökin alueelta, jossa ei ole kierrätysmahdollisuutta. Lehdet ja pahvit voit polttaa takassa, mutta muut jätteet menevät lajittelemattomina sekajäteastiaan. Miltä se tuntuu sinusta? (How do feel when you cannot recycle? Imagine renting a cottage that is situated in an area where you cannot recycle. You can burn magazines and cardboards in the fireplace but other wastes are disposed of with municipal mixed waste. How does it make you feel?)

_____

_____

15. Kierrättävätkö läheisesi (paperia, lasi jne.)? (Do people close to you recycle (paper, glass, etc.)?)

1. Kyllä (Yes) 2. Ei (No)

16. a. Kannustaako joku läheisesi (lapsesi, sukulaisesi, työkaverisi tms.) sinua kierrättämään? Jos kannustaa, niin miten? (Does someone close to you encourage you to recycle? If yes, how?)

_____

_____

b. Kyseenalaistaako joku kierrätysaktiivisuutesi? Jos kyseenalaistaa, kuka ja miten? (Does anyone question your recycling behaviour? If yes, who and how?)

_____

_____

17. a. Saatko riittävästi tietoa kierrätyksestä? (Do you receive enough information about recycling?)

_____

b. Mistä saat parhaiten tietoa? (What is the best source of information?)

_____

Taustatiedot (Background information)

18. Sukupuoli (Gender): 1. Mies (Male) 2. Nainen (Female)

19. Ikä (Age): _____

20. Kotipaikkakunta (Residence): _____

21. Mikä on ylin (ammatillinen) koulutuksesi? (Highest degree?)

1. Ei perusasteen (peruskoulu/kansakoulu/keskikoulu) jälkeisiä tutkintoja (No degrees after comprehensive/elementary/middle school)
2. Oppikoulu/Lukio (Grammar/Upper secondary school)
3. Ammattikoulu (Vocational school)
4. Opistotasoinen tutkinto (College degree)
5. Ammattikorkeakoulu (Polytechnic)
6. Yliopisto/Muu korkeakoulututkinto (University/Other institute of higher education)
7. Muu, mikä? (Other, what?)_____

22. Elämäntilanne (Life situation)

1. Opiskelija (Student)
2. Töissä kokopäiväisesti (Work full time)
3. Töissä osa-aikaisesti (Work part-time)
4. Yrittäjä (Entrepreneur)
5. Kotiäiti tai – isä (Housewife or- husband)
6. Työtön (Unemployed)
7. Eläkeläinen (Pensioner)
8. Muu, mikä? (Other, what?) _____

23. Taloutesi yhteenlasketut bruttotulot kuukaudessa (Household's gross income per month)

1. Alle 2000 euroa (Under 2,000 euros)
2. 2000-4000 euroa (2,000-4,000 euros)
3. 4000-6000 euroa (4,000-6,000 euros)
4. 6000-8000 euroa (6,000-8,000 euros)
5. Yli 8000 euroa (Over 8,000 euros)

24. a. Kuinka monta henkeä kuuluu talouteesi? (Number of people in your household)_____

b. Kuinka moni näistä on alle 18-vuotiaita? (Number of under 18-year-olds) _____

c. Kuinka monella on oma matkapuhelin? (How many of the family members have an own mobile phone?) _____

d. Kuinka moni näistä on työpuhelin? (How many of these are paid by an employer?)_____

25. a. Kuinka usein vaihdat uudempaan matkapuhelimeen? (How often do you buy a new phone?)

1. Yhden vuoden välein (At 1-year intervals)
2. Kahden vuoden välein (At 2-years intervals)
3. Kolmen vuoden välein (At 3-year intervals)
4. Useammin/Harvemmin, kuinka usein? (More often/seldom, how often?

_____

_____

b. Miksi yleensä vaihdat uudempaan matkapuhelimeen? (Why do you usually buy a new phone?)

1. Vanha ei toimi (Old does not finction)
2. Työpuhelin (vaihtuu säännöllisin väliajoin) (Paid by an employer, changes regularly)
3. Uudemmissa malleissa on haluamiani ominaisuuksia (Desirable qualities in new models)
4. Muu, miksi? (Other, why?)_____

Haluatko sanoa vielä jotain? (Do you want to say something?)

_____

_____

_____

Kiitos! (Thank you!)

Appendix 2: Code Frequencies

HU: Kyselyt
File: [C:\Documents and Settings\User\My Documents\Scientific Software\ATLASti\TextBank\Kyselyt.hpr5]
Edited by: Super
Date/Time: 12.06.07 12:48:55

Codes-Primary-Documents-Table

Code-Filter: All
PD-Filter: All

DOCS / CODES	PRIMARY 1	Totals
Aloitteleva kierrätt	3	3
arvometallit+luonto	1	1
Autoton kierrättäjä	1	1
ehkä muovin kierräty	1	1
Ehkä vähän omatuntoa	1	1
Ei akkuja sekajättei	2	2
ei enää, joskus pien	1	1
Ei esteitä	2	2
ei hyvältä	4	4
ei hyvältä, jäisi va	1	1
Ei koskaan ole kyllä	1	1
Ei kovin hyvältä, mu	2	2
Ei LIIAN suuria oman	1	1
ei mene kaupaksi	1	1
ei oikein miltään	1	1
ei ole hyvä asia	2	2
Ei roskia maahan	1	1
Ei se hirveästi hait	1	1
ei se tunnu pahalta	1	1
Ei sekajätteeseen	42	42
ei sille mitään voi.	1	1
ei tarviste kannusta	1	1
ei tavallista jätett	1	1
ei tunnu miltään, el	1	1
Ei tunnu oikein asia	1	1
ei, mieluummin möisi	1	1
elektroniikkatuottee	1	1
en ehkä tarpeeksi	1	1
En ole ajatellut asi	1	1
en ole niin ympärist	1	1
En ole ostanut uutta	1	1
En ole päättänyt mit	1	1
En ole varma saisiko	1	1
en pode huonoa omaat	3	3
En tiennyt että niit	1	1
Enemmän promoa	1	1
Epätietoisuus	2	2
Epäympyst	1	1
erittäin hyvä idea,	1	1
Hankaluus	1	1
Harmilliselta.	6	6
Helppo ympäristöteko	3	3
Helppo ympäristöteko	6	6
Helppo ympäristöteko	2	2
Helppoa.	3	3
Helppous ja turhat t	2	2
Huono asia luonnolle	5	5
huonolta	2	2
hyvä	1	1
hyvä asia	1	1
Hyvä mieli hyvästä y	4	4
Hyvän ulkonäön vuoks	1	1
hölmöltä	1	1
I keep them at home	1	1
ihan sama	1	1
jos voidaan käyttää	2	2
Jos yksittäinen tapa	1	1
Jotain tavaroita mit	1	1
Järkevää	1	1
Jätelasku+turhat tav	1	1
Jätelaskuni pienenee	1	1
jätin liikkeeseen	1	1
jätteet kuuluvaan as	1	1
Jääneet lojumaan	7	7
Jäävät yleensä laste	5	5
Kai se on ihan hyvä	1	1
Kannustava lähipiiri	2	2
Kannustava tyttöystä	1	1
Kannustava äiti	2	2
Kannustavat perheenj	2	2
Kannustavat vanhemma	1	1
Kannustavat ystävät	1	1
kaveripiirissä aihet	1	1
Keräilypaikkojen puu	11	11
Keräyspaikka kaukana	5	5
kielto	1	1
Kierrättäjä	42	42
Kierrättäjä+ei turha	1	1
Kierrättäminen ei tä	4	4
Kierrättävä lähipiir	1	1
Kierrätän ja opetan	1	1
Kierräyksen helppous	1	1
Kyllä (täytyisi)	1	1
Kyllä kierrätys on m	1	1
kyllä ok juttu	1	1
Kyllä, ei mielipidet	1	1

kyllä, hieno homma	1	1
Kyllä, koska kierrät	1	1
Kyllä, se on hyvä ju	1	1
Kyseenalaistava lähi	3	3
Kännyköiden paljous	5	5
käyttöikä on melko l	1	1
Laiskuus	5	5
lasten leluksi	1	1
liikkeeseen	1	1
liikkeeseen, kysymäl	1	1
Linja-autoileva kier	4	4
Linja-autoileva+vett	1	1
Maailma voi pelastua	1	1
maalit, patterit, ym	1	1
Miksi vaihtaisin kun	1	1
mikä tahansa, jos en	1	1
minä se kannustan	1	1
Miten jaksat kierrät	1	1
muovijäte	1	1
Myyjäliikkeeseen.	1	1
myyntiin?	1	1
No tietoa saa jos si	1	1
olen kuullut, hyvä a	1	1
olen, ok.	1	1
oli helppoa – vei va	1	1
olosuhteiden mukaan	1	1
ongelmajäte	4	4
osia voi vielä tarvi	1	1
pahalta	3	3
Paikka en muista, mu	1	1
Paikkojen vähäisyys	3	3
pidän sitä yhtä tärk	1	1
Pidän tärkeänä	6	6
pidän, jätteitä on h	1	1
Pidän, koska kierrät	1	1
Pienet tilat estää	1	1
postitin	1	1
Puhelin mennyt sukul	1	1
Pääsen eroon turhist	7	7
saadaan romut pois	1	1
Saamattomuus	1	1
se on sen paikan tap	1	1
sekajäte	1	1
Siitä ei ole mitään	1	1
Sopimattomia aineita	5	5
Sähköä ja vettä sääs	1	1
Sähköä säästävä kier	1	1
tai lastenlapsille	1	1
tiedon puute?	1	1
Tieto mahdollisuudes	1	1
tietoa vähän	1	1
Toiminnallinen näkök	5	5
totta kai ettei niin	1	1
tulisi liikaa vaikea	1	1
turhalta jätekuormal	1	1
Turhat tavarat ja he	5	5
Turhat tavarat ja ym	16	16
Turhat tavarat+pieni	1	1
Turhat tavarat+ympär	1	1
tyttären poika ”kome	1	1
Työkaverit	1	1
täydet astiat	1	1
Uusiokäyttö	6	6
vaivannäkö estää jon	1	1
Varakännykkä	23	23
Varauksellinen	1	1
vettä säästävä kierr	1	1
voi, voi, kohta me p	1	1
Vähäkuormittava kulu	1	1
Vähän autoileva kier	1	1
yleensä aika vanhoja	1	1
Yllätys	2	2
Ympäristömyönteinen	2	2
ympäristön vuoksi tä	1	1
Ympäristöteko+helppo	3	3
Ympäristöteko+turhat	2	2
Ympäristötietoinen	1	1
Ympäristötietoinen k	1	1
ympäristöystävällisy	1	1
Äiti Gaia ei huku pa	1	1
Ärsyttävältä	1	1
Totals	406	406

Appendix 3: Code Families

Code Families

HU: Kyselyt
File: [C:\Documents and Settings\User\My Documents\Scientific Software\ATLASti\TextBank\Kyselyt.hpr5]
Edited by: Super
Date/Time: 12.06.07 12:47:24

Code Family: Ei kierrätysmahd.
Created: 26.04.07 20:09:31 (Super)
Comment:
TERM: (("Kierrättämättömyys ei haittaa" & "Kierrättämättömyys tuntuu pahalta") & "Mahd. toimintaa tai varaus tai ymp.näkökulma")
Codes (0):
Quotation(s): 0

Code Family: En ole vienyt kännykkää kierrätykseen koska
Created: 26.04.07 10:12:26 (Super)
Codes (10): [Ei koskaan ole kyllä tullut mi..] [En ole ajatellut asiaa.] [En ole varma saisiko sen mahdo..] [En tiennyt että niitä voi kier..] [jätin liikkeeseen] [lasten leluksi] [Miksi vaihtaisin kun toimii.] [myyntiin?] [Puhelin mennyt sukulaisille, e..] [tai lastenlapsille]
Quotation(s): 10

Code Family: Esteitä ja kannustimia kierrättämiseen yleensä
Created: 26.04.07 19:56:39 (Super)
Comment:
TERM: ("Esteitä kierrättämiselle yleensä" & "Nämä kannustavat")
Codes (0):
Quotation(s): 0

Code Family: Esteitä kierrättämiselle yleensä
Created: 26.04.07 09:44:19 (Super)
Codes (11): [Ei esteitä] [Epätietoisuus] [Hankaluus] [Jotain tavaroita mitä en jaksa..] [Keräilypaikkojen puute] [Keräyspaikka kaukana] [Laiskuus] [Paikkojen vähäisyys] [Pienet tilat estää] [täydet astiat] [vaivannäkö estää jonkin verran..]
Quotation(s): 33

Code Family: Kampanja hyvä asia
Created: 25.04.07 10:32:51 (Super)
Codes (10): [Enemmän promoa] [erittäin hyvä idea, suurilla f..] [hyvä] [Kai se on ihan hyvä asia] [kyllä ok juttu] [Kyllä, ei mielipidettä, yleises..] [kyllä, hieno homma] [Kyllä, se on hyvä juttu että N..] [olen kuullut, hyvä asia] [olen, ok.]
Quotation(s): 10

Code Family: Kannustava ja kyseenalaistava lähipiiri
Created: 26.04.07 19:57:35 (Super)
Comment:
TERM: ("Kannustava lähipiiri" & "Miksi kierrätät?")
Codes (0):
Quotation(s): 0

Code Family: Kannustava lähipiiri
Created: 26.04.07 09:30:59 (Super)
Comment:Huomioi eka poikkeus!
Codes (13): [ei enää, joskus pienempänä] [ei tarviste kannustaa, kierrät..] [Kannustava lähipiiri] [Kannustava tyttöystävä] [Kannustava äiti] [Kannustavat perheenjäsenet] [Kannustavat vanhemmat] [Kannustavat ystävät] [kaveripiirissä aihetta käsitel..] [Kierrättävä lähipiiri] [minä se kannustan] [tyttären poika ”komentaa”] [Työkaverit]
Quotation(s): 16

Code Family: Kierrättäjä
Created: 26.04.07 10:03:11 (Super)
Codes (12): [Aloitteleva kierrättäjä] [Autoton kierrättäjä] [Kierrättäjä] [Kierrättäjä+ei turhaa moottorineuvojen käyttöä] [Kierrätän ja opetan sitä eteenpäin] [Linja-autoileva kierrättäjä] [Linja-autoileva+vettä ja sähköä säästäväinen kierrättäjä] [Sähköä ja vettä säästävä kierrättäjä] [Sähköä säästävä kierrättäjä] [vettä säästävä kierrättäjä] [Vähän autoileva kierrättäjä, ei roskia luontoon] [Ympäristötietoinen kierrättäjä]
Quotation(s): 58

Code Family: Kierrättämättömyys ei haittaa
Created: 26.04.07 09:13:12 (Super)
Codes (10): [ei oikein miltään] [Ei se hirveästi haittaa, jätte..] [ei se tunnu pahalta koska moni..] [ei sille mitään voi. en varmaa..] [ei tunnu miltään, ellen ota jä..] [en ole niin ympäristö tietoine..] [en pode huonoa omaatuntoa] [ihan sama] [olosuhteiden mukaan on elettäv..] [Varauksellinen]
Quotation(s): 12

Code Family: Kierrättämättömyys tuntuu pahalta
Created: 26.04.07 09:05:06 (Super)
Codes (14): [Ehkä vähän omatuntoa kolkuttai..] [ei hyvältä] [ei hyvältä, jäisi vaivaamaan k..] [Ei kovin hyvältä, mutta ei kai..] [Ei LIIAN suuria omantunnontuskia] [ei ole hyvä asia] [Ei tunnu oikein asianmukaiselt..] [Harmilliselta.] [huonolta] [hölmöltä] [pahalta] [turhalta jätekuormalta] [voi, voi, kohta me paskaan huk..] [Ärsyttävältä]
Quotation(s): 27

Code Family: Kännykkä muualla kuin kierrätykseen
Created: 26.04.07 19:55:47 (Super)
Comment:
TERM: ("En ole vienyt kännykkää kierrätykseen koska" & "Kännykät kotona koska")
Codes (0):
Quotation(s): 0

Code Family: Kännykät kotona koska
Created: 26.04.07 10:22:37 (Super)
Codes (11): [ei mene kaupaksi] [En ole ostanut uutta] [En ole päättänyt mitä niille t..] [Hyvän ulkonäön vuoksi.] [I keep them at home and will d..] [Jääneet lojumaan] [Jäävät yleensä lasten leluiksi..] [osia voi vielä tarvita] [Saamattomuus] [Varakännykkä] [yleensä aika vanhoja, rikkinäi..]
Quotation(s): 42

Code Family: Kännyköiden kierrättäminen
Created: 26.04.07 19:59:49 (Super)
Comment:
TERM: ("Kännyköiden kierrättäminen ei tärkeää" & "Kännyköiden kierrättäminen tärkeää")
Codes (0):
Quotation(s): 0

Code Family: Kännyköiden kierrättäminen ei tärkeää
Created: 26.04.07 10:14:20 (Super)
Codes (2): [ei, mieluummin möisin.] [Kierrättäminen ei tärkeää]
Quotation(s): 5

Code Family: Kännyköiden kierrättäminen tärkeää
Created: 26.04.07 09:33:29 (Super)
Codes (23): [arvometallit+luonto] [Ei akkuja sekajätteisiin] [Huono asia luonnolle] [hyvä asia] [jos voidaan käyttää hyötykäytt..] [Järkevää] [Kyllä kierrätys on mielestäni ..] [Kyllä, koska kierrätys on muut..] [Kännyköiden paljous] [käyttöikä on melko lyhyt] [ongelmajäte] [pidän sitä yhtä tärkeänä kuin ..] [Pidän tärkeänä] [pidän, jätteitä on hyvä käsite..] [Pidän, koska kierrättäminen on..] [saadaan romut pois] [Sopimattomia aineita] [tietoa vähän] [totta kai ettei niin paljon me..] [tulisi liikaa vaikeaa jätettä...] [Uusiokäyttö] [ympäristön vuoksi tärkeää] [ympäristöystävällisyyden takia..]
Quotation(s): 50

Code Family: Mahd. toimintaa tai varaus tai ymp.näkökulma
Created: 26.04.07 09:24:46 (Super)

Codes (3): [Jos yksittäinen tapaus, ok] [se on sen paikan tapa ja saatt..] [Toiminnallinen näkökulma]
Quotation(s): 7

Code Family: Mielipiteitä ja huomioita
Created: 26.04.07 17:26:10 (Super)
Codes (5): [Epäympyst] [Kyllä (täytyisi)] [mikä tahansa, jos en tarvi] [Tieto mahdollisuudesta riittää] [Yllätys]
Quotation(s): 6

Code Family: Miksi kierrätät?
Created: 26.04.07 17:13:47 (Super)
Codes (2): [Kyseenalaistava lähipiiri] [Miten jaksat kierrättää]
Quotation(s): 4

Code Family: Minne kierrätykseen ja millaista oli?
Created: 26.04.07 17:16:41 (Super)
Codes (7): [Helppoa.] [liikkeeseen] [liikkeeseen, kysymällä] [Myyjäliikkeeseen.] [oli helppoa – vei vain] [Paikka en muista, mutta lehdes..] [postitin]
Quotation(s): 9

Code Family: Näitä ei voi kierrättää
Created: 26.04.07 09:58:54 (Super)
Codes (4): [elektroniikkatuotteet] [maalit, patterit, yms.] [muovijäte] [sekajäte]
Quotation(s): 4

Code Family: Nämä kannustavat
Created: 26.04.07 10:59:51 (Super)
Codes (18): [Helppo ympäristöteko] [Helppo ympäristöteko+turhat tavarat] [Helppo ympäristöteko+turhat tavarat+jätelasku] [Helppous ja turhat tavarat] [Hyvä mieli hyvästä ympäristöteosta] [Jätelasku+turhat tavarat] [Jätelaskuni pienenee] [Kierräyksen helppous ja rationaalisuus] [Maailma voi pelastua tenaville..] [Pääsen eroon turhista tavarois..] [Siitä ei ole mitään erikoista ..] [Turhat tavarat ja helppous] [Turhat tavarat ja ympäristö] [Turhat tavarat+pieni lasku] [Turhat tavarat+ympäristö+jätelasku] [Ympäristöteko+helppous+jätelasku] [Ympäristöteko+turhat tavarat+helppous] [Äiti Gaia ei huku paskaan.]
Quotation(s): 58

Code Family: Symboli
Created: 26.04.07 17:22:25 (Super)
Codes (4): [Ei sekajätteeseen] [ei tavallista jätettä] [jätteet kuuluvaan astiaan] [kielto]
Quotation(s): 45

Code Family: Tietoa?
Created: 26.04.07 17:36:06 (Super)
Codes (3): [ehkä muovin kierrätyksestä lii..] [No tietoa saa jos sitä etsii k..] [tiedon puute?]
Quotation(s): 3

Code Family: Vastaajan ymp.ystävällisyys
Created: 26.04.07 19:58:15 (Super)
Comment:
TERM: ("Kierrättäjä" & "Ymp. ajatuksia ja tai toimintaa")
Codes (0):
Quotation(s): 0

Code Family: Ymp. ajatuksia ja tai toimintaa
Created: 26.04.07 10:54:38 (Super)
Codes (5): [Ei roskia maahan] [en ehkä tarpeeksi] [Vähäkuormittava kuluttaja ja liikkuja] [Ympäristömyönteinen] [Ympäristötietoinen]
Quotation(s): 6

Appendix 4: Tables

Old mobile phones at home

		Frequency	Percent
Valid	0	13	22,4
	1-2	33	56,9
	3-4	8	13,8
	5 or more	4	6,9
	Total	58	100,0

Old mobile phones at home * I recycle them Crosstabulation

			I recycle them		
			No	Yes	Total
Old mobile phones at home	0	Count	10	1	11
			20,0%	16,7%	19,6%
	1-2	Count	29	4	33
			58,0%	66,7%	58,9%
	3-4	Count	7	1	8
			14,0%	16,7%	14,3%
	5 or more	Count	4	0	4
			8,0%	,0%	7,1%
Total		Count	50	6	56
			100,0%	100,0%	100,0%

Number of family members having a mobile phone

		Frequency	Percent
Valid	1	17	34,0
	2	22	44,0
	3	4	8,0
	4	6	12,0
	All	1	2,0
	Total	50	100,0
Missing		8	

Number of mobile phones in use belonging to an employer

		Frequency	Percent
Valid	0	40	74,1
	1	12	22,2
	2	2	3,7
	Total	54	100,0
Missing		4	

Replacement interval in relation to agegroups

			Agegroups			
			Under 35	35-50	Over 50	Total
How often do you replace your mobile phone?	At 1-year intervals	Count	2	0	0	2
			8,3%	,0%	,0%	3,9%
	At 2-year intervals	Count	8	3	2	13
			33,3%	27,3%	12,5%	25,5%
	At 3-year intervals	Count	8	5	4	17
			33,3%	45,5%	25,0%	33,3%
	More often than at 1-year intervals	Count	1	0	0	1
			4,2%	,0%	,0%	2,0%
	Less frequently than at 3-year intervals	Count	5	3	9	17
			20,8%	27,3%	56,3%	33,3%
	I have not replaced yet	Count	0	0	1	1
			,0%	,0%	6,3%	2,0%
Total		Count	24	11	16	51
			100,0%	100,0%	100,0%	100,0%

Replacement interval in relation to mobile phone recycling behaviour

			I recycle them		
			No	Yes	Total
How often do you replace your mobile phone?	At 1-year intervals	Count	1	1	2
			2,3%	16,7%	4,0%
	At 2-year intervals	Count	11	2	13
			25,0%	33,3%	26,0%
	At 3-year intervals	Count	15	2	17
			34,1%	33,3%	34,0%
	More often than at 1-year intervals	Count	1	0	1
			2,3%	,0%	2,0%
	Less frequently than at 3-year intervals	Count	16	1	17
			36,4%	16,7%	34,0%
Total		Count	44	6	50
			100,0%	100,0%	100,0%

Reasons for keeping used mobile phones at home in relation to mobile phone recycling behaviour

			I recycle them		
			No	Yes	Total
Why do you keep old phones at home?	Spare phone	Count	17	3	20
			50,0%	75,0%	52,6%
	Have been left lying about at home	Count	5	0	5
			14,7%	,0%	13,2%
	Due maybe to inefficiency	Count	2	0	2
			5,9%	,0%	5,3%
	Toy for children	Count	3	1	4
			8,8%	25,0%	10,5%
	Zero resale value	Count	2	0	2
			5,9%	,0%	5,3%
	Other	Count	5	0	5
			14,7%	,0%	13,2%
Total		Count	34	4	38
			100,0%	100,0%	100,0%

The importance of mobile phone recycling in relation to mobile phone recycling behaviour

			I recycle them		
			No	Yes	Total
Do you consider the recycling of mobile phones important?	No	Count	5	0	5
			12,2%	,0%	10,6%
	Yes	Count	35	6	41
			85,4%	100,0%	87,2%
	Maybe	Count	1	0	1
			2,4%	,0%	2,1%
Total		Count	41	6	47
			100,0%	100,0%	100,0%

Have you heard about the campaign of Nokia and the WWF? * I recycle them Crosstabulation

			I recycle them		
			No	Yes	Total
Have you heard about the campaign of Nokia and the WWF?	No	Count	34	2	36
			81,0%	50,0%	78,3%
	Yes	Count	8	2	10
			19,0%	50,0%	21,7%
Total		Count	42	4	46
			100,0%	100,0%	100,0%

Have you heard about the campaign of Nokia and the WWF? * Area Crosstabulation

			Area			
			Capital city area	Western Finland	Eastern Finland	Total
Have you heard about the campaign of Nokia and the WWF?	No	Count	10	14	13	37
			83,3%	77,8%	76,5%	78,7%
	Yes	Count	2	4	4	10
			16,7%	22,2%	23,5%	21,3%
Total		Count	12	18	17	47
			100,0%	100,0%	100,0%	100,0%

Have you heard about the Government Decree of WEEE?

		Frequency	Percent
Valid	No	39	68,4
	Yes	18	31,6
	Total	57	100,0
Missing		1	

Have you heard about the Government Decree of WEEE? * I recycle them Crosstabulation

			I recycle them		
			No	Yes	Total
Have you heard about the Government Degree of WEEE?	No	Count	34	4	38
			69,4%	66,7%	69,1%
	Yes	Count	15	2	17
			30,6%	33,3%	30,9%
Total		Count	49	6	55
			100,0%	100,0%	100,0%

Have you seen this [separate collection] symbol?

		Frequency	Percent	Valid Percent
Valid	No	15	25,9	55,6
	Yes	10	17,2	37,0
	I am not sure	2	3,4	7,4
	Total	27	46,6	100,0
Missing		31	53,4	
Total		58	100,0	

Have you seen this symbol? * I recycle them Crosstabulation

			I recycle them		
			No	Yes	Total
Have you seen this symbol?	No	Count	13	1	14
			52,0%	100,0%	53,8%
	Yes	Count	10	0	10
			40,0%	,0%	38,5%
	I am not sure	Count	2	0	2
			8,0%	,0%	7,7%
Total		Count	25	1	26
			100,0%	100,0%	100,0%

What does it symbolise?

		Frequency	Percent
Valid	I do not know	2	4,3
	Must not dispose of with mixed waste	44	93,6
	Interdiction	1	2,1
	Total	47	100,0
Missing		11	

Recycling fee most be payed when recycling a mobile phone

		Frequency	Percent
Valid	No	53	91,4
	Yes	4	6,9
	I cannot say	1	1,7
	Total	58	100,0

Is it true that recycling fee most be payed when recycling a mobile phone? * I recycle them Crosstabulation

			I recycle them		
			No	Yes	Total
Is it true that recycling fee most be payed when recycling a mobile phone?	No	Count	46	5	51
			92,0%	83,3%	91,1%
	Yes	Count	3	1	4
			6,0%	16,7%	7,1%
	I cannot say	Count	1	0	1
			2,0%	,0%	1,8%
Total		Count	50	6	56
			100,0%	100,0%	100,0%

Do people close to you? * I recycle them Crosstabulation

			I recycle them		
			No	Yes	Total
Do people close to you recycle?	No	Count	1	1	2
			2,0%	16,7%	3,6%
	Yes	Count	48	5	53
			98,0%	83,3%	96,4%
Total		Count	49	6	55
			100,0%	100,0%	100,0%

Does someone encourage you to recycle?

		Frequency	Percent
Valid	Family members	7	18,4
	Friends	2	5,3
	Girl friend	1	2,6
	Me	1	2,6
	Workmates	1	2,6
	Yes	2	5,3
	No	24	63,2
	Total	38	100,0
Missing		20	

Does someone question your recycling activity?

		Frequency	Percent
Valid	Children	1	2,6
	Common-law husband	1	2,6
	Neighbours	1	2,6
	No	33	86,8
	Parents	1	2,6
	Sometimes	1	2,6
	Total	38	100,0
Missing		20	

Materials recycled

		Responses		Percent of Respondents b)
		N	Percent	
What do you recycle? a	Paper	55	19,6%	94,8%
	Glass	51	18,2%	87,9%
	Metal	35	12,5%	60,3%
	Cardboard	49	17,5%	84,5%
	Organic waste	42	15,0%	72,4%
	Clothes, furniture etc.	39	13,9%	67,2%
	Batteries	6	2,1%	10,3%
	Computer	1	,4%	1,7%
	Hazardous waste	2	,7%	3,4%
Total		280	100,0%	482,8%

a. Dichotomy group tabulated at value 1. b. Multiple response question N=58

Number of different materials recycled

		Frequency	Percent
Valid	2	1	1,7
	3	5	8,6
	4	19	32,8
	5	14	24,1
	6	16	27,6
	7	3	5,2
	Total	58	100,0

(Non-)recyclers motives to recycle

			I recycle them		
			No	Yes	Total
What motivates you to recycle? a	I divest of junk	Count	38	4	42
			76,0%	66,7%	
	I feel good being pro-environmental	Count	32	5	37
			64,0%	83,3%	
	Recycling is easy	Count	23	2	25
			46,0%	33,3%	
	My waste bill diminishes	Count	8	2	10
			16,0%	33,3%	
	Other	Count	2	1	3
			4,0%	16,7%	
Total		Count	50	6	56

Percentages and totals are based on respondents.

a. Dichotomy group tabulated at value 1.

Do you receive enough information?

		Frequency	Percent
Valid	No	4	7,0
	Yes	48	84,2
	I am not sure	5	8,8
	Total	57	100,0
Missing		1	

			I recycle them		
			No	Yes	Total
What is the best source of information?[a]	Mass media	Count	13	3	16
			34,2%	50,0%	
	Housing co-operative	Count	2	0	2
			5,3%	,0%	
	Brochures or newsletters	Count	2	1	3
			5,3%	16,7%	
	Internet	Count	19	2	21
			50,0%	33,3%	
	Home	Count	2	0	2
			5,3%	,0%	
	Instructions from dutsbin	Count	6	0	6
			15,8%	,0%	
	Other	Count	9	0	9
			23,7%	,0%	
Total		Count	38	6	44

Percentages and totals are based on respondents.

a. Dichotomy group tabulated at value 1.